PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

Dissertation submitted to

THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY,

CHENNAI -32

For the partial fulfilment of the degree

DOCTOR OF MEDICINE

(Siddha)

Submitted by

Dr. G. Ridhambaradevi

PG Scholar

National Institute of Siddha

Chennai - 47

Under the Guidance of

Dr. M. Meenakshi Sundaram, M.D (S),

Associate Professor & H.O.D (i/c)

Dept of Kuzhandhi Maruthuvam

National Institute of Siddha, Chennai – 47

Study Centre

Dept. of KUZHANDHAI MARUTHUVAM

National Institute of siddha

Tambaram Sanatorium, Chennai - 47

2015-2018

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN"** is bonafide and genuine research work carried out by me under the guidance of **Dr. M. Meenakshi Sundaram, M.D (S), Associate Professor,** Department of Kuzhandhai Maruthuvam, National Institute of Siddha, Chennai -47 and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or another similar title previously.

Date: Signature of the Candidate

Place: Chennai – 47. Dr. G. Ridhambaradevi

BONAFIDE CERTIFICATE

This is to certify that this dissertation work on **"PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN"** has been carried out by **Dr. G. Ridhambaradevi (Reg. No: 321514206)** Kuzhandhai Maruthuvam, National Institute of Siddha, Tambaram Sanatorium, Chennai under my guidance and supervision in partial fulfilment of regulation laid by The Tamilnadu Dr.M.G.R Medical University, Chennai for the final M.D (Siddha), Branch IV – KUZHANDHAI MARUTHUVAM Examination to be held in OCTOBER – 2018. This dissertation work is not reprinted or reproduced from the previous dissertation work.

Dr.M.MEENAKSHI SUNDARAM, M.D(S),
Associate Professor Guide,

Dr. M. MEENAKSHI SUNDARAM, M.D(S),
Associate Professor
Head of the Department (i/c)
Dept. of Kuzhandhai Maruthuvam
National Institute of Siddha
Chennai – 47

Forwarded by the Head of the Institute
Prof Dr.V. BANUMATHI, M.D (S),
Director
National Institute of Siddha
Tambaram Sanatorium, Chennai-600 047.

Place: Chennai – 47

Date:

I thank **Dr.V.Suba, M.Pharm.,Ph.D, Associate Professor, Dept.of Pharmacology,** National Institute of Siddha, Chennai-47 for her interesting teaching of pharmacology and valuable guidance to do this study.

I thank **Dr. N. Gayathri, B.V.Sc ,** Nationl Institute of Siddha, Chennai – 47 for here valuable guidance for doing toxicity study.

I thank the library **clerk Mrs.V.Kalpana, Mr.J.Rathinam library attendant of National Institute of Siddha,** Tambaram Sanatorium, Chennai-47, from where I derived much of the literary support. I gratefully acknowledge the assistance provided by all other faculties, Wellwisher and staffs of NIS, Chennai who rendered their cooperation throughout the course of study.

I express my sincere thanks to**Prof. Dr.N. Kabilan, MD(S), Ph.D, Head of the Department, Department of Siddha. The Dr. M.G.R University** for the guidance and encouragement in carrying out this work.

I wish to dedicate this work to my parents and my sisters who are helping and sacrificed everything for me and they support in every stage of this work and life. Especially I would like to express my sincere thanks to **Dr.T.R.Nishith, Dr.Anbarasan, Dr.C.Sasikala, Dr.S.Santhana kittu, Dr.Padma, Dr. Paechiyammal, Dr. Jayapriya, Dr. Kavitha** and all my loving friends who helped me a lot for my work. I remind thankfully all the animals that lost their lives for the sake of my study and without which i would not have been successful in my study. I express my hearty thanks to my parents **Dr.R.Ganesan, Mrs.G.Bakiyalakshmi and my Husband Mr.N.Manickam and my lovable son Mast.Chandrathiya** and my **brother's Mr.Bhuvaneshwaran and Mr.Vibuleshwaran** for their co-operation and Moral support from the very beginning of my career.

CONTENTS

INTRODUCTION

Well being of humans are not designed in heaven but by us and the atmosphere around us. Dramatic life style modifications have introduced lots of harmful effects in the form disease to the society. Health of an individual not only depends on his physical state but also on his Mental state. To make the body and the mind in perfect shape, people are in a quest for a natural remedy which will be rendered by our traditional system. The medicines used in siddha system are prepared from Herbals, Minerals and Animals which will not cause any side affects on proper usage. In the materialized world, people have started to look back at their traditional science in which the natural atmosphere dwell.

One such traditional system is Siddha system of medicine which is one of the oldest traditional system in the world. It is a system which not only deals with the physical health but also induces changes in the soul of an individual. Our siddha system stabilizes the mind and improves the well being of the people. Nowadays not only the body of the human being gets affected by disease but also the Mind due to various activates being followed. So it is very obvious that the society is looking for system which provides holistic approach for curing disease and it will be provided by our siddha system Siddha system of medicine, which was preferred and practiced by Siddhar's, who are the forerunners of indigenous medical science. The siddhar's are persons who practiced Meditations, pranayamas and other Yogic practices, so that they have attained Siddhi and super natural powers, and also to cure the sufferings. They discovered many natural medicines which are widely used for treating many disease.

According to Siddha system of medicine, Health is defined as the state of physical, psychological, Social and Spiritual component of a human being. All the objects in this world either living or non-living are composed of five elements (*Pancha Bootham*) namely; Earth - *Man*, Water - *Neer*, Fire – Thee, Air - *Kaatru* , Ether - *Aagayam*. Physical health of human body is maintained by the three basic vital forces (humours) namely *Vaatham, Pitham, Kabam* called *Uyirthathukal* which are activated by the function of *Panchabootham* (Five elements). When the above humours are affected or not in a balanced state they become *Kutrams* which then disposes to diseases. In Siddha system the diseases are classified according to *Mukkutram* theory and diseases

are 4448 in numbers. The *Vaatham* diseases are 80, *Pitham* diseases 40 and *Kabam* 20 in number. Siddhar yugi munivar has classified Vaatha disease into 80 types.

In human beings the life stages are classified as Pre natal, Newborn, infants, Early childhood, Middle childhood, late childhood and adolescent, Early adult hood, Midlife, Mature adult, Late adult hood and Death. In between these 12 stages of the life the human body will be affected by disease. According to the siddha system the pediatric life stages are classified into10 stages. They are Kaapu paruvam (0-3Months), sengeerai (3-5 months) Thaal (5-7months), sappani (7-9months), mutham (9-11months), varugai (11-13months), ambulli (13-15months) these 7 stages are common for male and female child. After this period siruparai (15-17months), sitril (17-19Months), siruther (19-21months) are mentioned for male children and kazhangu (15-17months), ammanai (17-19Months), oosal (19-21months) are mentioned for female children. There are many diseases commonly affecting the children from the time of conception to Adolescence. One among them is "*Baala Vaatham"* which is mainly interfering with the principal function of locomotion in human being. In this disease commonly Nervous system is being involved and in later stages it make discomfort, disability and inability to the individual. This disease is also mentioned in siddha pediatric text books. Hence the author is interested to try an effective remedy to the suffering children and evaluvate this disease also with the modern aspect with the application of basic principles of Siddha and also with the supporting modern parameters. The sage Agasthiyar has classified Baala Vaatham into 8 types in his book of "Agasthiyar Kummi"

"Physically challenged children" is a blanket term used to classify conditions that childhood disability caused by neuronal damage .The proportion of disabled children in developing countries is generally higher than in developed countries, it is estimated that 6% to 10% of children in India are born disabled. Developmental disabilities are some of the most upsetting for a family to deal. Diagnosis like cerebral palsy, Autism, Down syndrome, ADHD and intellectual disabilities often cause children to be removed from the mainstream, and parents must be brutal advocates to make sure their children receive the services, therapy, and inclusion they need and deserve. At present, no health care profession has convincingly assumed the responsibility of the health for physically challenged children. Although drug therapy may not completely correct complications associated with childhood disability, evidence does show that it helps in managing

problems. There are many physical disabilities that can affect children. In our siddha paediatric text, the definition for Baala Vaatham has been given as: [1]

வாலையென்ற குழந்தைக்கு வாதம் வந்தால்
வசம்கெட்டு கைகாலும் விளங்கிடாது
கோலமென்ற சக்தியது குறைந்து காணும்
குழைந்து விழும் நரம்பெல்லாம் தளர்ந்து நிற்க்கும்
காலமென்ற கால் கரமும் யிட்டா போலாம்
கண்டத்தில் விசை தளரும் கழுத்து கோணும்
சீலமிக நடக்க ஒட்டா சீதம் தோன்றும்
தேகத்தில் குளிர்ச்சையுண்டாம் விறைக்கும் தானே.

In the pediatric text book of Mathalai Noi thokuthi part 3, the symptoms of Baala Vaatham is explained as inability/ difficulty to use the limb, loss of power and tone, nerve weakness, inability to move the affected limb, deviation, loss of energy, weakness, chills, spasticity of the affected part.

The symptoms of Baala vatham may be related with Paresis. Paresis means weakness. It is the condition typified by a weakness of voluntary movement or partial loss of voluntary movement or by impaired movement. It mainly affects both upper limbs and lower limbs. It affects both sex. Most of the children have spastic paresis. Health and lifestyle early in life been have profound impact on health and quality of life in recent year. The prevalence of paresis range is 50% to 80% hospital based reported in world wide. Mostly upper limb weakness is marked in 77% of patients and lower limb weakness in 72%. The incidence rate of paresis in India is currently estimated to be approximately 1.5 million new cases reported in 2010. This is a staggering number, every minute, 7 people will acquire a neurologic disability, amounting to nearly 11,000 every day. (NCBI Neurology. 2012 Nov 20). Presently, Supportive therapies for training the children with PARESIS like physio therapy, occupational therapy, Psycho therapy etc… are being used. Certain medication like Antispastic drugs are also used in severe condition. Still now its quite challenging to manage the children with PARESIS with existing therapy.

In NIS many more Paresis children are reporting to our Kuzhanthai Maruthuvam Department. In the Siddha system of medicine, herbs, minerals, metals and salts are have been used for preparing the medicine. However, scientific research, using modern

techniques is needed to provide additional evidence on the drug standardization. In this context, the need exists to evaluate many Siddha drugs and therapies in contemporary use, which also includes Mind–body interventions, Biological based therapies such as formulations and diets, Manipulative methods such as Thokkanam. Thus the aim and objectives of the present study was to test the efficacy of the Siddha medicines / methodologies in PARESIS children. The purpose of this project is to develop recommendations on "best practices" related primarily to the evaluate Siddha methodologies and Medicines. Different treatment modalities can improve the quality of physically challenged children and these can include internal medication and External therapies like Thokkanam (Massage). Because children with PARESIS have multiple symptoms for which no curative treatment exists, their families seek therapies from many sources. Some look for cures, while others seek therapies that will improve the way of their children day to day activites. None of the siddha medicines/methodologies used to treat spasticity in children has been adequately tested for safety and efficacy. In this regard, it was decided to take up a combination of Siddha formulation and therapy for the study. The drugs chosen for the project included CHITRA MUTTI KUDINEER as internal medicine, BAALAVAATHA THYLAM as External for thokkanam, all of which have been used in the Siddha system of medicine for many centuries either singly or in various combination. In order to limit this issue, efforts were undertaken to study the result of the use of a combination of these therapy.

These drugs are also mentioned in siddha text books. The Internal drug Chitra Mutti Kudineer Chooranam is a herbal preparation mentioned in the text book of "Tharala mani pala Vaagadam". Most of the raw drugs in Baala Vaatha thylam which is used for external application have Anti- Vaatha , Tonic, Stimulatn, Neuroprotective, property mentioned in the text book of "Mathali Noi Thoguthi" other than the internal and external medications used in siddha system, an unique art in the name of Thokkanam has been gifted to the community by siddhars. Stimulation of blood circulation and the nervous system in the body cures disease pertaining to the muscles tendon, ligaments, bones and nervous and internal organs. In this study , apart from internal and External medicines, the effect of thokkanam is also be assessed.

AIM AND OBJECTIVES

AIM:

To Evaluate the therapeutic efficacy of siddha drug “Chitra Mutti Kudineer” (Internal) and “Baala Vaatham” (External) in the treatment of Baala Vaatham (Paresis) by clinical assessment with siddha therapeutic management in children.

OBJECTIVES:

- To Calibrate the Resemblance and the Equivalence of Baala vatham with Paresis
- To correlate the Siddha and modern aspect of the disease
- To evaluate the Bio-chemical, Phytochemical, physicochemical and Safety of the trial drug “Chitramuttikudineer” (Interal)
- To establish the treatment for Baala Vatham with the siddha medicine

ACKNOWLEDGEMENT

I thank Almight **God** for giving me this opportunity, providing the strength and energy to fulfil this commitment. And also my lovable son to cooperate to entire study period without any distraction.

I express my profound sense of gratitude to **Prof.Dr.V.Banumathi,M.D(S), Director,** National Institute of Siddha, Chennai-47 for granting permission to undertake a study in this dissertation topic and also for providing all the basic facilities in order to carry out this work.

I express my gratitude and heartfelt thanks to **Dr.M. Meenakshi Sundaram, M.D(S), Head of the department (i/c) and my Guide,** Department of Kuzhanthai Maruthuvam, NIS, Chennai -47, gave his insightful comments and constructive criticisms at different stages of my research which were thought provoking and they helped me to focus my ideas.

I express my sincere thanks to Prof**. Dr. N. Vaitheeswaran, M.D (Ped)., Senior Asst. Professor,** Govt. Royapettah Hospital, Kilpauk Medical College, Chennai, for his valuable guidance in this work.

I express my gratitude and heartfelt thanks to **Dr. K. Vetrivel, M.D (S), Associate Professor, Lecturer, Dr.M. Amalahazel M.D(S), Ph.D., Lecturer Dr. K. Suresh, M.D (S), Ph.D., Lecturer Dr.P.Arulmozhi, M.D(S), Ph.D., Lecturer, Dr.K. VennilaM.D.(S),Ph.D. Dept. of Kuzhandhai Maruthuvam,** National Institute of Siddha, Chennai-47, for their valuable guidance and encouragement.

I am thankful to **Dr.D.Aravind MD(S) Assistant professor, Dept. of Maruthuva Thavara Iyal**, National Institute of Siddha, Chennai-47 for their guidance for my drug authentication.

. I thank **Dr.A.Muthuvel, M.Sc, Ph.D (Biochemistry) Assistant Professor,** National Institute of Siddha, Chennai-47 for his guidance in doing chemical studies.

My special acknowledgements to **Mr.M.Subramanian, M.Sc.,(Statistics), Senior Research Officer,** National Institute of Siddha, Chennai-47, for his valuable help in statistical analysis.

SIDDHA ASPECT

BAALA VAATHAM

The main cause for the disease Baala Vaatham due to the deragment in vaatham. Siddha system of Medicine is an ancient one enriched with good resources. The sources of Siddha medicines include Herbs, Minerals, Metals and also animal origin.

Siddha system was propounded by the Siddhars is a vast and unique system which defines health as a perfect state of physical, psychosocial, social and spiritual wellbeing of an individual.

The system not only deals with medicinal but with spirituality, righteous way of living, Rejuvenation and its main aim is attainment of perfection.

"அண்டத்திலுள்ளதே பிண்டம்
பிண்டத்திலுள்ளதே அண்டம்
அண்டமும் பிண்டமும் ஒன்றே
அறிந்துதான் பார்கையிலே"

சட்டமுனி ஞானம்.

The universe around as in the Macrocosm (Andam) and the human body is considered as the Microcosm (Pindam). Any changes in the Macrocosm will have its impact in the Microcosm in the human body.

நிலந்தீ நீர்வளி விசும்போ டைந்தும்
கலந்த மயக்கம் உலகம் ஆதலின்
இருதினை ஐம்பால் இயனெறி வழா அமைத்
திரிவில் சொல்லொடு தாழஆல் வேண்டும் [2]

-தொல்காப்பியம் பொருள் அகராதி

The poet explains that both Andam and Pindam formed by the basic five elements called panchaboodhams. They are

1. Pirithivi (Earth)
2. Appu (Water)
3. Theyu (Fire)
4. Vaayu (Air)
5. Aahayam (Ether)

These five elements combined to form Three Thathus.

1. Vaatham
2. Pitham
3. Kabam

These three thathu composed of

1. Vatham = Air + Earth
2. Pitham = Fire
3. Kabam = Earth + water

The physiological units of the Human body is otherwise called as Vali (Vatham), Azhal (Pitham) and Iyyam (Kabam). They are also formed by the combination of the five basic elements. Accordingly Vali is formed by the combination of Vayu (Air) and Aagayam (Space). This is the Creative force. Azhal is formed by theyu (Fire). This is the Force of Preservation. Iyyam is formed by Prithivi (Earth) and Appu (Water). This is the Force of Protection. These three humors are in the ratio of 4:2:1 in equilibrium which is a healthy normal condition and disturbance in their equilibrium leads to diseases. This is denoted in

"பொங்கிய தைந்துக்குள் பொல்லாதது இம்மூன்றுதான்
தங்கிய வாயு சமத்தன் மகாவாதம்
பங்கிய வன்னியால் பகுந்தது பித்தமே
பகுந்த சலத்தில் பரிசிக்கும் நல்லையும்
வகுந்த இம்மூன்றால் வளர்ந்தது நோயெல்லாம்
அகுந்தது தானறிந்து அளவிட்ட யோகிகள்
மகிழ்ந்தே யிதியில் நின்றமயக்கம் அறிவாறே

-பதினென் சித்தர் நாடி சாஸ்த்திரம்.

Mode of Action:

Actually it is invisible. It can be professed through its movements in our body.

Locations:

Below the umbilicus.

"நாமென்ற வாதத்துக் கிருப்பிடமே கேளாய்
நாபிக்குக் கீழென்று நவில லாகும்" [3]

-யூகிமுனி

As per yugi muni, “Vatham” lies in,

1. Abanan
2. Edakalai
3. Kamakodi
4. Undhiyini keezh moolam
5. Hip region
6. Bones
7. Muscles
8. Nerves
9. Joints
10. Skin
11. Hair follicles
12. Stools

It also lives in the Gastro intestinal tract, Bones, Ear Thigh, Hip and skin.

Properties of Vaatham[6]

1. Giving briskness
2. Expiration and inspiration
3. Functioning of the mind, thoughts and body
4. Regulation of the “fourteen Physiological Reflexes” (Vegam)
5. Functioning of the “Seven Udal Kattukal” uniformly
6. Protection and strengthening of the five sensory organs. (Iymporigal)

Charecteristics of Vaatham:

1. Body ache
2. Pricking pain
3. Tearing pain
4. Nerve weakness
5. Mental distress
6. Movements
7. Pain in the joints
8. Traumatic pain
9. Dislocation of joints
10. Weakness of organs

11. Paralysis of the limbs
12. Polydypsia
13. Severe pain in calf and thigh muscles
14. Bony pricking pain
15. Anuria and constipation
16. Unable to do flexion and extension of the limbs
17. All tastes like astringent
18. Excess salivation

Natural qualities of Vatham:

1. Kadinam - Roughness
2. Varatchi - Dryness
3. Elesu - Lighter
4. Kulirichi - Coldness
5. Asaithal - Unstableness
6. Anuthuvam - Subtleness

Opposite Qualities of Vatham:

1. Mirudhu - Softness
2. Pasumai - unctuous
3. Paluvu - Heaviness
4. Akkini - Hot
5. Sthirm - Stableness
6. Katti - solidity

Diet:

தொழில்பெறு கைப்புக்கார்த்தல் துவர்த்தல் விஞ்சுகினுஞ்
சோறும் கழையதாம் வரகு மற்றைப்பைந்தினை யருந்தினாலும்
ஏழில் பெறப் பகலுறங்கி இரவினிலுறங் காததாலும்
மழை நிகர் குழலினாலே வாதங்கோ பிக்குங் காணே.

-பரராச சேகரம்

Intake of bitter, astringent and pungent taste in excess, consumption of cold foods, intake of millet etc., aggravate vatham.

முத்தோடங்களை மிகுதிப் படுத்தும் சுவைகள்:

"புளிதுவர்விஞ் சுங்கறியாற்பூரிக்கும் வாதம்
ஓளியுவர்கைப் பேறில் பித் துச் சீறும் --கிளிமொழியே
கார்ப்பினிப்பு விஞ்சிற் கபம்விஞ்சுஞ் சட்டிரதச்
சேரப்புணர் நோயணுகாதே". [4]

The tastes, which increase Vatham are sour and Astringent.

முத்தோட மிகுதியை சமனஞ் செய்யும் சுவைகள்:

"வாத மேலிட்டால் மதுரம் புளியுப்பு
சேதமுறச் செய்யுஞ் சிறையம் -- ஓதக்கேள்
காரந் துவர்கசப்புக் காட்டுஞ் சுவையெல்லாம்
சாரப் பரிகாரஞ் சாற்று" [5]

-(கண்ணுசாமியம்)

The tastes, which neturalizes vatham are sweet, sour and salt.

Precipitating factors:

நூலென்றவாதம் வந்த வகைதானேது
நுண்மையாய்க் கன்மத்தின் வகையைக் கேளு
காலிலே தோன்றியது கடுப்பதேது
கைகாலில் முடக்கியது வீக்கமேது
கோலிலே படுக்கின்ற் விருட்சமான
குழந்தைமரந் தனை வெட்டல் மேல் தோல் சீவல்
நாவிரே சீவ செந்து கால் முறித்தல்
நல்லகொம்பு தழை முறித்தல் நலித்தல் காணே.[7]

- அகத்தியர் கன்ம காண்டம்

kanmavinai (sins commited in the previous birth)

Habits:

வெயிலில் நடக்கையாலும் மிகத்தண்ணீர் குடிக்கையாலும்
செய்யிழை மகளிழை சோர்ந்தனுப விக்கையாலும்
பையனே உண்மையாலும் பாகற்காய் திண்கையாலும்
தையயேல வாதரோகம் சனிக்குமென் றறிந்து கொள்ளே[8]

-தேரையர் வாகடம்

Walking in hot sun, excessive intake of water, intake of bitter gourd may predispose to vatha disease.

Environmental factors:

வாதவர்த் தனைகால மேதோ வென்னில்
மருவுகின்ற வானிகர் கடக மாகும்
ஆதலைப் பசியோடு கார்த்திகை தன்னில்
அடருமே மற்றமா தங்கள் தன்னில்
போதவே சமிக்குகின்ற கால மாகும[9]

-யூகி வைத்திய சிந்தாமணி

Vatha disease will be precipitated during the month from aani to kaarthigai (June to December).

வாதம் மிகுதியாகும் காலங்கள்:

பதுமத்தை பூக்கவைக்கும் பானுமிகக் காயும்
முதுவேனி லிற்புவிநீர் முற்றும் - கதுமென
வற்றும் கபம.்கும் வாயுமிகும் வாழ்மாந்தர்க்
குற்ற நலிக் கேதிதென் றோது.[10]

In muthuvenil kaalam, the increased solar radiation increases the evaporation of the water content in the world. At the same time, the similar action on the body produces increased absorbtion of water from mucosa for digestion and develops the vitality of vatha disease. So this disease occurs predominatly in muthuvenil kalam.

Pathophysiology:

Change in lifestyle, occupation, food and habits lead to development of this disease by causing derangement of macro elements in the body (pancha boothangal).

Improper food habits alter the elemental composition directly while the other causes lead to derangement of these elements indirectly. When the elemental composition is altered uyir thaathukkal or the three humors which are made up of these elements naturally get deranged. This simultaneously leads to derangement of seven udal thaathukkal, which produces symptoms of baalavatham.

பால வாதம்

வாலையென்ற குழந்தைக்கு வாதம் வந்தால்
வசம்கெட்டு கைகாலும் விளங்கிடாது
கோலமென்ற சக்தியது குறைந்து காணும்
குழைந்து விழும் நரம்பெல்லாம் தளர்ந்து நிற்க்கும்
காலமென்ற கால் கரமும் யிட்டா போலாம்
கண்டத்தில் விசை தளரும் கழுத்து கோணும்
சீலமிக நடக்க ஒட்டா சீதம் தோன்றும்
தேகத்தில் குளிர்ச்சையுண்டாம் விறைக்கும் தானே.[1]

-மதலைநோய் தொகுதி

பால வாத உற்பத்தி விபரம்

சொல்லிய பாலவாதம் தொடர்ந்திடும் விபரங்கேளு
மெல்லிய கருவில் வந்து மேவிய திசை வாயுவுகள்
நல்லியலில்லாமல்த் தான் நாதமுஞ் சேருமாகில்
தல்லிய குணமும் விட்டுதறைந்திடும் நரம்புதானே.[11]

-பால வாத நிதானம்.

குழந்தைகளுக்கு பாலவாதம் ஏற்படும் காரணத்தைம் கருவானது உற்பத்தி ஆகும் போது சுரோணிதத்துடன் பத்துவகை வாயுக்களும் சேர்ந்து குணங்களுக்கு ஏற்ப நரம்புகளுக்கு ஏற்ப நரம்புகளைப் பற்றும்.

தந்தையும் தாயும் கூடி தழுவியே புணர்ந்த நாளில்
வந்துமுன் செய்த் தோஷமருவியே கர்ப்பக் கூட்டில்
விந்தியாகி சரத்தினூடே வேங்குழலோடம் போலே
அந்த நாள் உறுப்பைத் தொட்டு அடர்ந்திடும என்று எண்ணலாமே.[11]

-பால வாத நிதானம்.

மேலும் தாய், தந்தையர்கள் உடலுறவு கொள்ளும் போது கருவில் இணையும் ஆத்மா, முன் சென்மத்தில் செய்த கருமங்களின் பலாபலன்கள்படி, கர்ப்பத்திலேயே நோய் அதன் உறுப்புகளில் குடிக்கொள்ளும்.

அடர்ந்திடும் சடத்திலேதான் அக்கினி கணக்கில் நின்று
துடர்ந்துதான்குறைந்தும் மீறி சுகமுற்று குளிர்ச்சையாகில்
உடனந்த கர்ப்பந்தனில் உருவியே யமர்ந்த நோக்கம்
நடந்துமே நாற்பத்து நால்மாதம் - வருஷத்தின் மேலே[11]

பால வாத நிதானம்.

உடலில் சூடானது பரவி தொடர்ந்து நின்று கூடியும் குறைந்தும் சில வேளைகளில் குளிர்ந்தும் இருக்கும். இந்நிலை கர்பப்பையிலிருக்கும் குழந்தையை பாதிக்கும். குழந்தை பிறந்த நாற்பத்தி நான்கு மாதங்களுக்கப் பிறகு வாத நோயாக மாறும்.

மேல் தாவியது என்று மிகுந்திடுத் மூன்று ஐந்தும்
குாலமாமதனின் மேலும் கண்டிடுமீராற் மட்டும்
சீலமாய் வந்து வாதம் சிசுக்களுக்கு துடருமென்று
சாலவே முனிவனி தானும் பாலற் கென்றே.[11]

பால வாத நிதானம்.

மேலும் மூன்று, ஐந்து, பன்னிரெண்டு, வருடங்களில் வாதமானது குழந்தைகளை தொடரும் என்று வேதங்கள் ஓதும் முனிவர்கள் சொல்லியுள்ளனர்.

என்றதோர் முன் சென்மத்தின் இசைந்துடன் இவர்கள் தானும்
நின்றதோர் சீவசெந்து நிலை தளர்ந்திடுத் வாற் தன்னை
கொன்றிடாது தைத்து கை கால்களைதுலைத் திட்ட பாவத்தாலும்
அன்று தான் பெரியோர்சாமிசக்திகள் வணங்காததாலும் [11]

பால வாத நிதானம்.

முற்பிறவியில் உயிர் பிராணிகளை நிலை தளரும் வண்ணம் உதைத்து கை, கால்களை முறித்து விட்ட பாவத்தாலும், பெரியவர்கள் இறைவன் இவர்களை வணங்காததாலும்,

வணங்காத கோபத்தால் சாபத்தாலும்
வல்வினையாம் தீவினைகள் அதிகத்தாலும்
இணங்காத கோபத்தால் அழுகையாலும்
இரையதனால் மலசலத்தின் பெந்தத்தாலும்
கணங் கால்கை நரம்பிலானது ஊனத்தாலும்
கணத்தபிலன் செய்ததாலும் வாதம் வந்து
வணங்காதே யானுமே இது வாலைகளுக்கு[11]

பால வாத நிதானம்.

கோபத்தாலும், சாபத்தாலும், தீ வினையின் பலனாலும், அழுகையாலும், உண்ணும் உணவிலுள்ள குற்றத்தாலும், மலம், சிறுநீர் இவைகளை கட்டுவதாலும், கை, கால் நரம்புகளின் ஊனத்தாலும், உடலை இறுக்கிப் பிடிப்பதாலும், குழந்தைகளுக்கு வாதம் வந்து சேரும்.

கூறுவேன் இதில் எட்டுவகையின் பேரும்
குறிப்பாக சாத்தியமும் அசாத்தியந்தானும்
வேறுமே அவுஷதமும் கிறிகையாவும்
விபரமதாய் திகழும் கழிப்பும் செய்ய
ஆறுமே விசைதளர்ந்து நோவும் மாறி
அங்கமது நன்றாகி வளர்ந்து மேல் மேல்
தேறுமே உடல் பலத்து திடமாக
திருந்திடுவாரென்று முனி சொன்னமாமே.[11]

-பால வாத நிதானம்.

குழந்தைகளுக்கு வரும் எட்டு வகை வாதத்தின் பெயரும், சாத்திய அசாத்தியப் பிரிவுகளையும், மருந்து வகைகளையும், கிரிகை, கழிப்பு முறைகள் போன்றவற்றை செய்தால் வாதத்தின் விசை தளர்ந்து வேதனையும் நீங்கி உடல் திடமுடன் செம்மையாய் வளர்ந்து வருமென்று மாமுனி கூறிய அரும் கருத்தாகும்.

பால வாதம் எட்டுக்கும் பெயர்

ஆமென்ற சுரத்தின் வாதம் அக்கினி வாதத்தோடே
ஓமென்ற முலவாதம் உணக்கிய வாதந்தானும்
தாமென்ற அதிசாரவாதம் தறுக்கும் மேல் மூச்சுவாதம்
போமென்ற விரையில் வாதம் பொருத்துவாதங்களென்றே.[11]

- பால வாத நிதானம்.

சுரத்தின் வாதம், அக்கினி வாதம், மூலவாதம், உணக்கல் வாதம், அதிசாரவாதம், மேல் மூச்சுவாதம், விரைவாதம், பொருத்து வாதம் ஆகியவையே ஆகும்.

சாத்தியம் அசாத்தியம்

எட்டு வாதங்கள் தன்னிலஅசைவுறும் சாத்தியசாத்தியம்
மட்டமாஞ் சுரத்தின் வாதமிசைந்த அக்கினியின் வாதம்
விட்டறு மூலவாதம் விரையினில் வாதம் நாலும்
டமாதீருஞ் சாத்தியம் தீராது உணக்கல் வாதமென்றே[11]

- பால வாத நிதானம்.

முன் சொன்ன எட்டுவகை வாதங்களின் சுரவாதம், அக்கினி வாதம், மூலவாதம் விரைவாதம், ஆகிய நான்கு வித வாதங்கள் சாத்தியப் பிரிவைச் சார்ந்தது.

வாதமே பொருத்து வாதம் வருகும் மேல் மூச்சு வாதம்
சீதமே அதிசாரத்தின் செப்பிய வாதம் நாலும்

கோதற தீர்ந்திடாது கொடும் பிணி அசாத்தியமாகும்
தீதறப் பொதிகை வாழும் திரு முனி அருளிச் செய்தா[11]

- பால வாத நிதானம்.

உணக்கல் வாதம், பொருத்து வாதம், மேல் மூச்சு வாதம், அதிசாரவாதம், ஆகிய நான்கு வித வாதங்களும் அசாத்தியப் பிரிவை சார்ந்ததென்று பொதிகை மலையில் வாழும் அகத்திய முனிவர் தீர்க்கமாய் கூறியுள்ளார்.

சுரவாத குணம்

குத்திடும் அங்கமெல்லாம் கொடும் சுரம் கோபமாகி
சுற்றிடுமுதிர்துன்னை சுழன்றுடேல் வாந்தியுண்டாம்
இவற்றிவலம் விடாது இடுப்பொரு பக்கம் தன்னில்
வற்றிய பாலற்மெய்யில் வரும் சுரவாதந்தானே.[11]

உடல் முழுவதும் குத்தலும், சுரமும் ஏற்பட்டு, அதன் விளைவாக வாந்தியுண்டாகும், மலம் சரியாக வெளியாகாது, இடுப்பின் ஒரு பக்கம் தேய்ந்து வரும் இதை சுரவாதம் என்பர்.

அக்கினி வாதத்தின் குணம்

எரித்திடும் தேகமெல்லாம் இருமலும் செருமலுண்டாம்
பெருந்திடும் சிரங்கும் உண்டாகும் பேய் முளிமுளிக்கும் பிள்ளை
அரித்திடும் முடங்கும் கை கால் அன்னை பால் உண்ண மாட்டார்
தெரிந்திடும் அரிப்புமுண்டாகும் சில்லெரி சத்தாமாமே அறி.[11]

உடல் முழுவதும் எரிச்சல் எழும், இருமல், செருமல் ஏற்படும் சிரங்கும் உண்டாகும். குழந்தை பேய்முழி போன்ற பயங்கரமானப் பார்வையைக் காட்டும். உடலில் அரிப்புத் தோன்றும், கை கால்களை முடமாக்கும், தாய்ப்பால் குடிக்க மாட்டாது குரலானது சில்லெரி வண்டின் சத்தம் போல் தோன்றும், இதுவே அக்கினி வாதக் குணங்களாகும்.

மூலவாத குணம்

வருமடில் குழிலினாளோ மைந்தர்மேல் திமிற்பு உண்டாகும்
பொருமலும் மலம் விடாது புக்கிடும் ஆகந்தன்னிலட
செருமலும் வேர்வையாகி சேரவே குளுந்து காட்டும்
விருவியே எட்டாம் நாளில் விட்டிட காலில் சோரும[11]

மூலவாதம் ஏற்பட்ட குழந்தையின் உடலில் திமிர்ப்பு ஏற்படும். வயிற்றில் பொருமல் உண்டாகி மலமானது வெளியேறாது. செருமலுடன் வியர்வை ஏற்பட்டு உடல் குளிர்ந்துக் காண்ப்படும். எட்டு நாள் சென்ற பின்பு வாதமானது காலில் வந்துச் சேரும்.

ஆனந்த வாதம் (விரை வாதம்)

வித்தொருபரலில் தோன்றி வீக்கமுங் குத்துண்டாகும்
சுத்தியே குடல் வலித்து சுருட்டிமேலிழுத்து வாங்கும்
தெற்றிடுமிருபாலோயும் திரிந்திடாசைவு குன்றும்
மத்தளம் போலே சத்தம் கதறிடும் பாலன் தானே.[11]

விரைவாதமென்று சொல்லப்படும் ஆனந்த வாதம் குழந்தைகளின் விரை பரவில் தோன்றி வீங்கி குத்தலுண்டாக்கும். குடல் நொந்து சுருட்டி மேலே இழுத்து வைக்கும். இரண்டு கால்களும் ஓய்ந்து போம். நடை தடுமாறி நடக்க இயலாது. அசைவு குறையும். குழந்தையின் குரலானது மத்தளம் போல் இருக்கும்.

உணக்கல் வாதம்

உரைத்திடுங் கையுங்காலும் உறுப்பெல்லாந் தளர்ந்துக காட்டி
நிரைப்பறுங்கழுத்து கோணும் நீர்மலம் செறுத்துக் கொள்ளும்
துரைத்திடும் சீதம் வேர்வை துவள்முலை விருப்பமில்லை
கரைத்திடும் பாவைபோலே அடங்கலு முணக்கலாமே.[11]

உணக்கல் வாதம் ஏற்பட்டால் கை, கால், உடல் உறுப்புகள் யாவும் தளர்ந்து கழுத்தும் கோணும். சிறுநீரும் மலமும் வெளியேறாது. சீதம் வியர்வை தோன்றும் தாய் பால் உண்ணமாட்டாது. பாவை போன்று உடல் மெலிவுறும்.

பொருத்து வாத குணம்

அவயவம் பொருத்து தோறும் அதனில் நீர் கட்டுண்டாகும்
கவயவம் போலே நின்று காய்சலுமதிப முண்டாம்
இவயசமிகுதியாகம் இசவெல்லாமிளகி நிற்கும்
உவயவம் கையுங்காலும் உறுப்பெல்லாம் தளர்ந்து போமே.[11]

பொருத்து வாதத்தின் நிமித்தமாக உடல் பொருத்துகளில் நீர்கட்டு உண்டாகி வீங்கி,வேதனையும், சுரமும் தோன்றும். பொருத்துகள் இளகி நிற்க்கும். கை, கால் மற்றுமுள்ள உடல் உறுப்புகள் தளர்ந்து தோன்றும்.

மேல் மூச்சு வாதம்

வருந்தியே பாலற்மெய்யில் வசைகெடுங்கையுங் காலும்
திரும்பிய அசவறாது தேகமுங் குளிர்றசை யாகும்
விரும்பிய விசைதளரும் விளைத்திடுங் கழுத்து கோணும்
நிரம்பிய சக்திகுன்றும் நிலந்தளந்துணிடாதே.[11]

குழந்தைக்கு மேல் மூச்ச வாதம் ஏற்பட்டால் கை கால் அசைக்க முடியாது. உடல் குளிர்ந்து காணப்படும். உடல் தளர்ந்து கழுத்தும் கோணும். குழந்தையின் சக்தி குறைந்து நிலத்தில் காலை ஊன்றாது.

அதிசார வாத குணம்

வசங்கெட்டுங் கையுங்காலும் வளைந்துமே குளைடந்து போகும்
கசங்கியே வயறெரிந்து கழிச்சலும் பொருமலாகி
விசம்பெற குளிர்ச்சையுணடாம் விக்கலும் பனியும் காட்டும்
மசங்கிய போதக் கேடாம் அதிசாரவாத மென்னே.[11]

-பாலவாத நிதானம்

அதிசார வாதம் ஏற்பட்டால் கையும் காலும் வளைந்து குழைந்து விடும். வயிற்றில் எரிவு உண்டாகி கழிச்சலும் பொருமலும் ஏற்படும் உடல் குளிர்ந்து காணப்படும். மேலும் விக்கலும், சுரமும் தோன்றும். மயக்கமும் தோன்றும்.

இத்தகைய குறிகுணங்களை கொண்ட பால வாதம் என்னும் நோய்க்கு உள்மருந்தாக சிற்றாமுட்டி குடிநீர் மற்றும் வெளி மருந்தாக தொக்கணமுறையில் பாலவாத தைலம் உபயோகப்படுத்தப் படுகிறது.

சிற்றாமுட்டி குடிநீர் (வாதத்துக்கு கஷாயம்)

போதவெழுவாதமது தீரவொருகுடிநீரு புகலுவது கேளுமினிதாய்
புத்தியொடு செய்திடில் சித்தியுறுமேயது பாங்கினோடு தூங்காமலே
கேதமறுவோர்க் கொம்பரத்தை வெள்ளுள்ளியும் முட்டிவேரோடுளுந்து
கேளுமினிரண்டரைகழஞ்சவகையாயெடு ஒன்றாகவே சதைத்து
நீதமுறுயிரு படிய்பபுதனிலேயிடு அனலிட்டதைக் குறுக்கி
நிறைய எட்டிலொன்றதாய் சீனி மேலிட்டதை இனி குடியுமதை யந்தி சந்தி
வாதமோடு தேகமுளைவத்தி வலியானதும் கைகாலு விறையலுடனே[12]
வளமாய் தரிப்புகள் தலை நோவனைத்துமே மாறுமறி தெளிவாகவே.

தரள மணி பலவாகடம்

பால வாதத் தைலம்

தானென்ற நின்பெண்ணெய் உரிதான் பின்னும்
சாற்றுகிறேன் புள்ளிபட்ட வெற்றிலை சாறு உரிதான்
வானென்ற வனை வீதம் சமனதாக
வாங்கியே கரகமதி லளந்து விட்டு
கோனென்ற பழுக்காய் பாக்கு ஒருபலந்தான்
குமற அரைத்தே கரைத்து வடித்து கொண்டு
பூவென்ற காசெடை புகட்டு மேலெங்கும்
பூசி விடு பாலவாதம் போதும் பாரே.[13]

மதலைநோய் தொகுதி- 3

தொக்கணம்

தொக்கணம் என்பது மர்த்தனம் எனப்படும். வளியால் உண்டாக்க கூடிய நோய்கள் எல்லாவற்றையும் நீக்குவதற்க்கு இதுவே பயன்படும். இதன் செய்முறை ஒன்பது வகைப்படும். அவை:

1. தட்டல்
2. இறுக்கல்
3. பிடித்தல்
4. முறுக்கல்
5. கைகட்டல்
6. இழுத்தல்
7. அழுத்தல்
8. மல்லார்தல்
9. அசைத்தல் என்பனவாகும்

இவ்வுடலில் உள்ள நாடிகள் மூவகை. அவை வாதம், பித்தம், கபம்.

தொக்கணத்தின் பண்பு:

தொக்கணத்தி னாலிரத்தந் தோல்ஊ ணிவைகட்கு
மிக்கு சவுக்கியஞ்ச மீரனும்போ - மெய்க்கதிக
புட்டியுறக்கம் புணர்ச்சி யிவைகதிக்கும்
பட்ட அலைச்சலறும் பார்.

பொருட் பண்பு நூல் (சமீரம் - வாயு)

மர்த்தனம் - தரு

மர்த்தன மாகிய தொக்கணத் தின்செயல் வகுப்பேனே - சதா
நிந்தமும் வாதம் பிணித்த பிணிப்பைச் செகுப்பேனே
மல்லகரான பிடகர்கை----------
-------- வினவுதி நீமுறை நன்றாக.[14]

தேரன் தரு.

தொக்கணம் உடலில் செயல்படும் முறை:

கணையெலும்பு, முதுகெலும்பு, பழுவின் விலாவெலும்பு, கங்காள எலும்பு ஆகிய தோலோடு அணைந்த எலும்புகள் ஐந்து வகைப்படும். இவைகள் அமைந்த உடலில் வாதம் மிஞ்சும். ஆதனால் அனலாகிய பித்தம் மிகும். அதனால் ஐயமும் உண்டாகும். ஆதலால் பத்து வகையான வாயுக்களும், நாடி பத்தும் அமைவனவாம்.

இவற்றை ஒழுங்குபடுத்திக் கொள்பவர் பதினாறு வயதுடைய குமரனைப் போல் காணப்படுவர்.[15]

தொக்கணம் செய்முறை:

உடம்பில் பரிசித்து வரும் காற்றினால் உண்டாகின்ற நோய்க்குப் பிடித்தற்றொழிலும் மருந்து போல் செயல்படும். எனவே தொக்கணத்தினை வறிதே பிடித்தலன்றித் தைலத்தைக் கொண்டும் மேற்சொன்ன 9 முறைகளில் செய்வதுண்டு. இங்கனம் செய்திடில் உடலுறுப்புகள் முறுக்கேறி உரம் பெரும்.

இப்பரிகாரம் வாதப் பிணிகளையெல்லாங் கெடுத்து வாதப் பிணியினால் எழுந்திருக்கமாட்டாத நொண்டிபோல்வானையும் எழுந்து நடக்கச் செய்யும். தொக்கணத்தைச் சரிவர செய்வதால் வாத நோய்களையே யன்றி பித்த, ஐயநோய்களையும் அகற்றலாம்.[15]

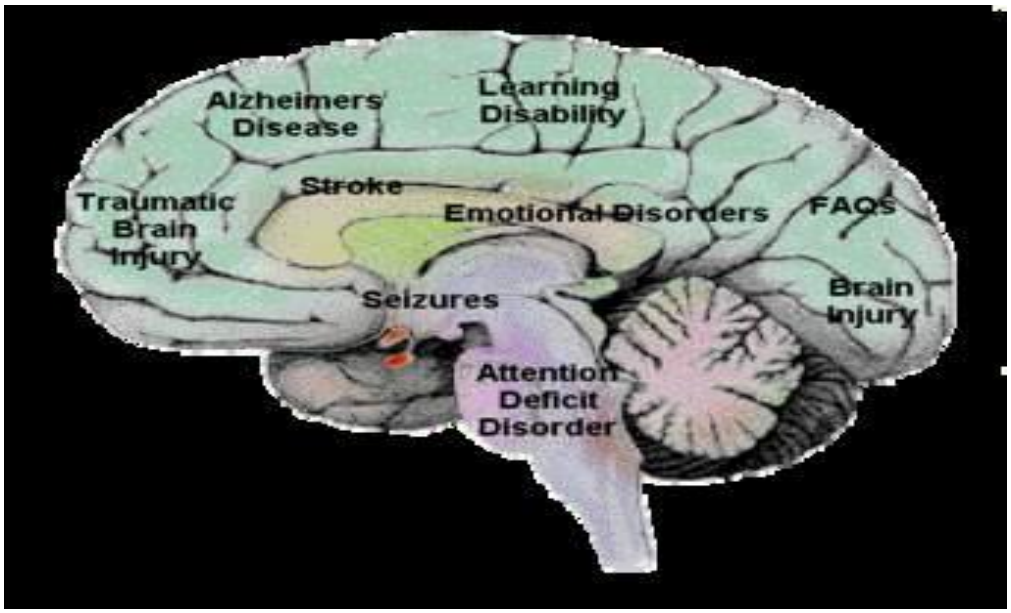
MODERN ASPECT

ANATOMICAL LOCALIZATION OF NEUROLOGICAL PROBLEMS

A clear, precise and accurate history of the entire course of the illness is imperative in neurological disorders. It often leads to a provisional diagnosis and also helps to guide the physician towards a more pointed and detailed neurological examination.

It helps to determine the aetiology, etio pathogenesis, course of events and possible sites of lesions. The onset of disease whether it is acute, sub acute, chronic or acute exacerbation of a chronic illness is important in clinical neurology. Similarly, the course of the illness, whether progressive, static, regressive or showing improvement from the time of insult are important clues in distinguishing a degenerative brain disorder from acute acquired insults.

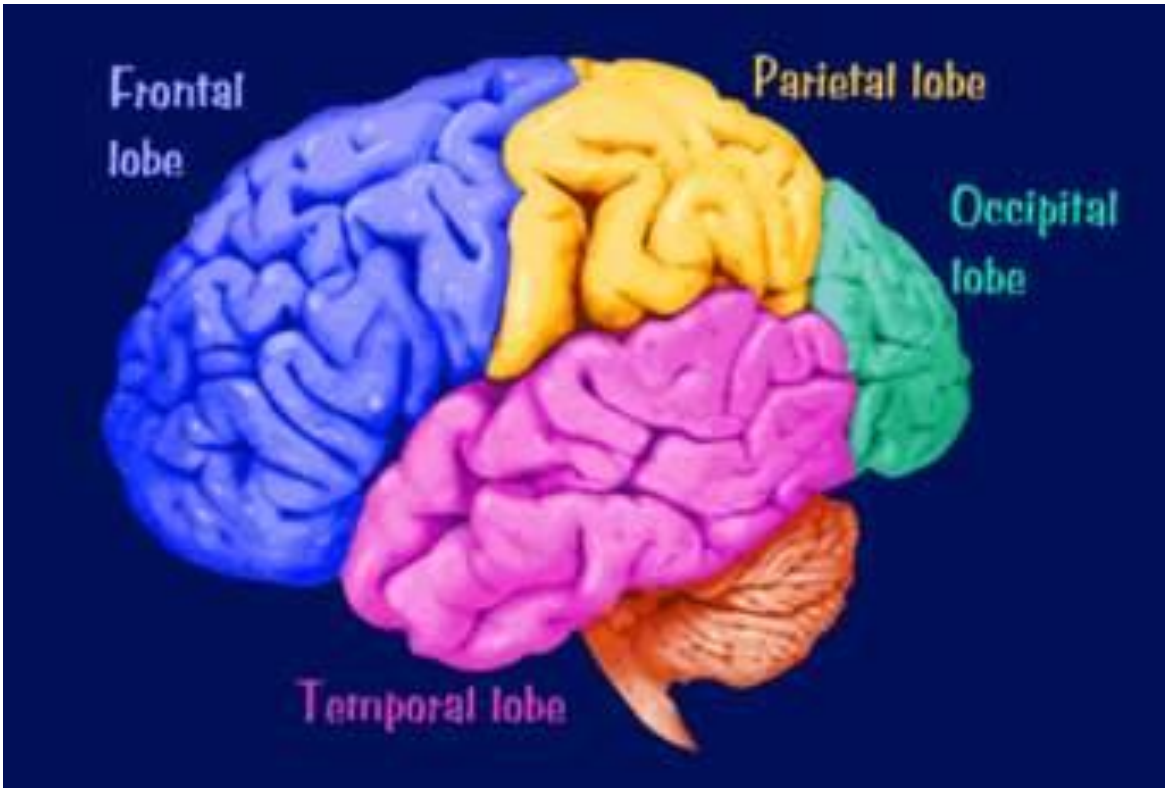
Common symptom groups include delayed neurodevelopment, regression of neuro development, symptoms such as fits, motor weakness, gait and tone abnormalities, altered sensorial states, features of raised intracranial pressure, and sensory symptoms. History should evaluate the details of each of the above symptoms and also presence or absence of other symptoms' groups. A holistic approach is required to assess the overall status.



CEREBRAL LESIONS:

The cerebral cortex functions is an integrated manner, yet certain functions are more specifically controlled from various specific sites. In cerebral cortical insults, the localization or preferential involvement of various lobes of the cortex can be obtained by history of symptoms related to higher functions and specific signs are;

S. No	Lobe in cerebrum	The effects of the lesions
1.	Frontal lobe	Disinhibition Lack of initiative Antisocial behaviour Impaired memory Incontinence Grasp reflexes Anosmia Seizure disorder Plantars extensor DTR exaggerated
2..	Temporal lobe	Dysphasia Dyslexia Poor memory Complex hallucinations (smell, sound, vision) Homonymous hemianopia Psychomotor seizures
3.	Parietal lobe	Dyscalculia Dysphasia Dyslexia Apraxia Agnosia Homonymous hemianopia Exaggerated deep tendon reflexes
4.	Occipital lobe	Homonymous hemianopia Hemianopic scotomas Visual agnosia Impaired face recognition Visual hallucination followed by convulsion (lights, zig-zag's lines)



SPINAL CORD:

Lesions of the spinal cord often lead to paraplegia or quadriplegia. The onset of weakness, pattern of progression, time taken for evolution of the full profile should be enquired into. The associated symptoms which need to be interrogated include history of pain, girdle sensation, radicular pain, sensory loss including touch, pain, temperature, pressure and posterior column abnormalities are often difficult to elicit in children. A definite sensory loss level is hard to define and thus a useful parameter for identification of site of spinal cord lesion is not available in childhood. Involvement of bladder and bowel control, peri anal sensations and sphincter tone are important. Presence of cutaneous dimple, lipoma, tuft of hair, spinal tenderness, per spinal swelling should be differentiated into compressive or non compressive myelopathies, and extramedullary or intramedullary lesions. The clinical feature that help in this regard are listed below.

LESION INVOLVING THE SPINAL CORD AND ITS LOCALIZATION:

Paraplegia: It is a symmetric paralysis of both lower extremities.

Quadriplegia: It is paralysis of all four extremities. It is also called as tetraplegia.

Monoplegia: it is paralysis of one extremity only.

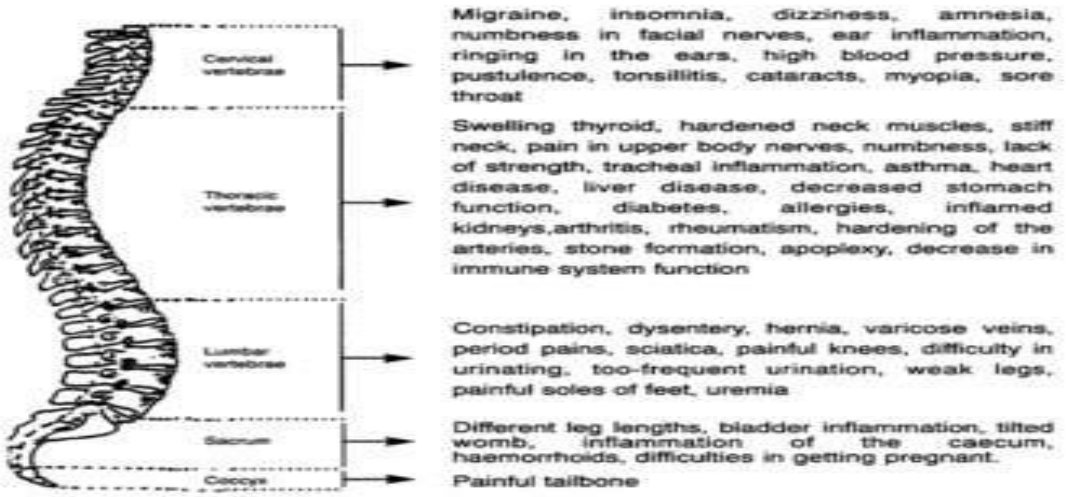
CAUSES OF PARAPLEGIA:

Cortical causes – Cortical venous thrombosis, cerebral palsy, spino cerebellar hereditary spastic paraplegia.

Spinal causes – Transverse myelitis, epidural abcess, herpes zoster myelitis, GB syndrome, poliomyelitis, trauma, and tubercuous osteomyelitis of vertebra.

Paraplegia in flexion – the pyramidal tracts are severely affected, and there is a lesion of descending spinal pathways. The legs become progressively more flexed at knee and hip, and stimulation provokes painful flexor spasm.

Paraplegia in extension – when spinal lesion is incomplete and affectes principally the pyramidal tracts the tone in lower limbs is increased in extensor muscles.



FEATURES OF LOCALIZATION IN SPINAL CORD:

Cord segment	Clinical features	Muscle paralysed	Reflexes
C_3-C_4	Pain in neck and occipital pain paresthesia and weakness in upper limb early relative anesthesia of face paralysis of 6^{th}, 10^{th} and 11^{th} cranial nerve.	Lower parts of trapezius, supra spinatus and infra spinatus Muscle of upper limb, Diaphragm	

C_7	Quadrplegia Paraplegia	Triceps and extensors of wrist and fingers	Triceps (C6-7) lost
C_8, T_1 T_6	Spastic paralysis of trunk and lower limbs Paralysis of ocular sympathatheic – some times Spastic paralysis of muscles of abodomen and lower limbs	Triceps and extensors of wrist and fingers Flexors of wrist and fingers and muscles of hand. Intercostals, upper and lower rectus abnominis, oblique abdominis	Triceps (C6- 7) lost In upper limb – normal, exaggeration in lower limb Upper abnorminals and lower abdominals lost
T_{9-10}	Spastic paraplegia	Lower half of rectus abdominis	Upper abdominals normal lower abdominals lost
$T_{12}L_1$	Spastic paraplegia	Lower fibers of obliue abdominis and transverslis lliopsoas	
L_{3-4}	Spastic paraplegia	Quadriceps, abductors of hip	Knee jerk (l_{2-4}) lost. Ankle jerk + (S_{1-2}).
S_{1-2}	Flexion of hip, adduction of thigh, extension of knee and dorsiflexion of foot possible. All other movements in lower extremities weak	Glutei, calf muscles anterior tibial and peroneal, small muscles of foot	Knee jerk and Ankle jerk lost, plantar reflexes lost

S_{3-4}	No paraplegia. Retention ofurine and feces	Paralysis of external sphincter	Anal and bulbocavernous reflexes lost. DTR normal
Cauda Equina	1.Whole cauda – aesthesia below folds of groin, including genitals, loss of control of bladder and rectum 2.Upper Sacral and L_3- sensory loss over front and posterior and outer aspect of thigh 3.Below S_2 – Saddle – shaped area of anaesthesia, incontinence of urine and feces 4. S_{4-5} and coccygeal roots – anesthesia of anus and rectum	Paralysis of lower limb Paralysis of gluteal. Hamstring and all muscles below knee No paralysis of lower limb Paralysis of levator ani	Absent deep reflexes Knee jerk and ankle jerk lost All reflexes in lower limb normal

16

TR--- Deep Tendon Reflex

PARESIS

DEFINITION:

Paresis the term describe weakness. The term paresis comes from the Ancient Greek "letting go" from "to let go, to let fall".

Paresis is defined as a condition of muscular weakness caused by nerve damage or diseases. It is the medical term for partial paralysis, impaired movement or partial loss of movement.

It usually refers to the limbs, but it can also be used to describe the muscles of the eye Iopthalmoparesis, the stomach (Gastroparesis), and also the Vocal cord (Vocal cord oaresis). Neurologists use the term *paresis* to describe weakness, and *plegia* to describe paralysis in which all voluntary movement is lost. [17]

DEFERENCE BETWEEN PARESIS AND PARALYSIS:

Paresis - weakness of voluntary movements

Paralysis - in which all voluntary movement is lost

AETIOLOGY :

This ailment is congenital or acquired in nature. In frequent cases, children are found with paralysis of one upper extremity, which appear as a result of injury to the brachial plexus during childbirth. Motor activity of hands of the child is limited or absent. It is parallel to the body, it has a flattened appearance in the joints.

It happens that paresis is noted on the hand and foot with the same side or exclusively on the feet. This problem is possible, when developing an innate threshold of the spinal cord. Paralysis can occur in the child with age, if he at the time of birth has diseased brain. Typically, this situation occurs when the child reaches 2 years of age. Only an experienced neurologist, highly qualified and can properly diagnose and prescribe appropriate therapy.

Normal muscle function requires communication all along the motor pathway, a chain of nerve cells that runs from your brain through the spinal cord and out to your

muscles. A complete interruption of communication anywhere along the pathway prevents muscle movement resulting in paresis or paralysis.

Paresis is the condition describing an inefficiency that cause muscle weakness. Any condition causing paresis may progress from weakness to paralysis. And nerve regeneration or regrowth can return strength to a paralyzed muscle.

A paralyzed muscle may be flaccid, flabby and without tone. Or it may be spastic, tight and with too much tone.

SIGNS AND SYMPTOMS:

The list of signs and symptoms of paresis are

- Impaired movements
- Weakness
- Tingling
- Myalgia
- Numbness
- Balance issues
- Vision changes
- Speech difficulties
- Increased muscle tone
- Appearance of pathological reflexes

SITE OF LEISON:

The distribuition of paresis or paralysis offers important clues for determining the site of nerve damage

- Monoplegia ~ caused by isolated damage to central or peripheral nervous system
- Hemiplegia ~ almost always caused by brain damage on opposite side of paralysis
- Diplegia ~ brain damage, most often caused by cerebral palsy
- Quadriplegia ~ shoulders or higher upper spinal cord damage
- Paraplegia ~ lower spinal cord injury

CAUSES :

Causes of broader categories of paresis occur in more medical conditions. They are:

- Neuromuscular conditions
- Muscle condition
- Nervous system condition
- Movement conditions

PARESIS IS A COMPLICATION OF OTHER CONDITIONS:

Other conditions that might have paresis as a complication may, potentially, be an underlying cause of paresis. Following as having paresis as a complication of that condition:

- Electrical burns
- Sickle cell Anemia

PARESIS AS A SYMPTOM:

Conditions listing paresis as a symptom may also be potential underlying causes of paresis.

- Cutaneomeningospinal angiomatosis
- Henoch – Schonlein purpura
- Selected Endocephalities
- Sickle cell Anemia.

MEDICATIONS OR SUBSTANCES CAUSING PARESIS:

- The following drugs, medications, substances or toxins are some of the possible causes of paresis as a symptom. This list is incomplete and various other drus or substances may causes your symptoms. Always advise any medications or treatments you are using, including prescripition, over – the – counter, supplements, herbal or alternative treatments.
- Seromycin pulvules
- Cycloserine etc.,

- As with all medical conditions, there may be causal factors. Further relevant information on cause of paresis may be found
- Paresis represent partial paralysis. In other word, it can be characterized as a certain impossibility of performance of various actions and movements because of serious defeats important central and peripheral nervous systems.

Experts conditionally divides this disease into two big groups.

The first – organic when there is opportunity precisely to find out why the concrete nervous impulse not always reaches a muscle.

The second group – functional which are diagnosed by dangerous injuries of a cerebral coretex.

The main type of paresis are nerve paresis, paresis of extremities, paresis of a throat and distalny paresis. Dangerous paresis of a nerve is often partial restrictions of actions of muscles of a body of the person which occurs owing to his concrete part when muscle cease to carry out habitual human functions. This serious frustration mainly is connected with violations of nervous system.

Other type – paresis of extremities is usually provoked by a dangerous cerebral haemorrhage. It considered quite widespread disease among the populations of many countries. At least some million people strongly suffer from such partial loss of important functionality of extremities. This is only one extremity is immobilized, diagnose monoparesis, paraparesis is such illness when two hands or both feet are affected. At tetraparesis bothe the lower and tip extremities badly move.

Paresis of throat is an incomplete paralysis extensive guttural area. It is possible to divide this view of three small subspecies. Miopathichesky paresis is provoked by various inflammatory process which are possible in muscles, and also various pathologies of nerves, usually carry out ways and even the centres of brain activity. Rank laryngitis and tuberculosis as them.

Neuropatichesky paresis arises because of various changes of the central and peripheral nervous systems. Such serious changes in TsNs always happen because of listeriya, and in the peripheral – because of the wandering nerve. These serious

pathologies are quite often connected both with injuries and with other inflammations cervical or in chest department.

Distalny paresis of hands does impossible performance of diverse easy movements. It is divided in two sub groups – central and peripheral. At such type of a disease the patient cannot simply squeeze a hand in a first. Moreover, quite often tighter with such elementary compression there is also an extension in a luchezapyastny joint of the sick person.

PARESIS REASONS:

The main reasons for distalny paresis it is possible to note a patrimonial trauma in important area of a humeral texture. Haemorrhages, strokes, tumors, long migraines, typical multiple sclerosis considerable defeats of hemispheres of the top cervical department of a spinal cord and brain, as well as other injuries are other reasons.

The reasons of developing of paresis of a throat covered in polietiologichesky pathology. Quite often this type of a disease develops and against other infectious disease. Quite often paresis of a throat can be diagnosed at such inflammatory disease as laryngotracheitis, a typhoid, syphilis, botulism and siringomiyeliya.

The reasons of paresis of a facial nerve consist available such illness as herpes, flu, a rubella, adenoviruses, TsMV and chicken pox. However completely be not proved communication of these disease with paresis front nerva a the majority of cases of paresis of extremites by the reasons various injuries and accidents can.

PARESIS SYMPTOMS:

Progressive increase of tone of muscle can be referred to the main symptoms of this disease. It is also possible to note serious violation of reflexes and a hyper reflection. Thus the clinical picture of typical paresis of a throat is based from various violations of a voice, and breast violations. It is possible to note its main manifestations – decrease in sonority of a voice, loss of a timbre of a voice, the shepotny speech, hoarseness, hoarseness and jingle of a voice. In additionally an important symptom in fatigue at insignificant voice loadings.

At paresis of extremities it is observed not only increase of a tone of muscles, but also essentially violation of reflexes, and also the hyper reflection is noted. At paresis of a facial nerve strong morbidity and quite unpleasant feeling is felt. The Assimitrichnost or a partial immovability the preson are the main signs of this type of a disease. Thus it is difficult simple to patient to smile and he experience economies difficulties at usual conversation.

At paresis of a throat serious violation of breath as it is difficult for air to come to airways of patient are noticeable. In some patients there is a dangerous asphyxia. Typical miopathichesky paresis of a throat with dangerous bilateral defeat is shown by considerable violations of a phonation at a neyropathichesky paresis of a throat often weakness muscles, and also the extending glottis are noted in the beginning, irritability, sleep disorders and fatigue are inherent in all type of paresis.

At diagnosis of paresis participation of such experts as neuropsychiatrists, otolaryngologists, neurosurgeons, psychiatrists and pulmonologists usually is required. When diagnosing such disease the important role is played by careful collecting the anamnesis, and also detection of tendency of each specific patient to typical psychogenic reactions.

TYPES OF PARESIS

- Monoparesis – One leg or one arm
- Paraparesis – Both legs
- Hemiparesis – One arm and one leg on either side of the body
- Triparesis - Three limbs. This can either mean both legs and one arm, both arms and a leg, or a combination of one arm, one leg, and face
- Quadri paresis - All four limbs, equally affected

Monoparesis	Hemiparesis	Paraparesis	Quadri paresis
			
One leg or one arm	One arm and one leg on either side of the body	Both legs	All four limbs, equally affected

MONOPLEGIA

Monoplegia is a paralysis of a single limb, usually an arm. Common symptoms associated with monoplegic patients are weakness, numbness, and pain in the affected limb. Monoplegia is a type of paralysis that falls under hemiplegia. While hemiplegia is paralysis on half of the body, monoplegia is restricted to a single limb or to a specific region of the body. Monoplegia of the upper limb is sometimes referred to as brachial monoplegia, and that of the lower limb is called crural monoplegia. Monoplegia in the lower extremities is not as common of an occurrence in the upper extremities. Monoparesis is a similar condition, but less severe because one limb is very weak in this case, not paralyzed.

SIGNS AND SYMPTOMS:

There are a number of symptoms associated with monoplegia.

- Curling of the hands or stiffness of the feet,
- Weakness
- Spasticity
- Numbness
- Paralysis
- Pain in the affected limb
- Headaches, and shoulder pain
- Weakness and loss of sensation in the affected extremity, usually an arm

PARAPLEGIA :

Paraplegia is an impairment in motor or sensory function of the lower extremities. The word comes from Greek "half-striking". It is usually caused by Spinal cord injury or a Congenital condition that affects the neural (brain) elements of the spinal canal. The area of the spinal canal that is affected in paraplegia is either the thoracic, lumbar, or sacral regions..

Spastic paraplegia is a form of paraplegia defined by spasticity of the affected muscles, rather than flaccid paralysis.

HEMIPARESIS :

Hemiparesis, or unilateral paresis, is weakness of one entire side of the body (hemi - means "half"). **Hemiplegia** is, in its most severe form, complete paralysis of half of the body. Hemiparesis and hemiplegia can be caused by different medical conditions, including congenital causes, trauma, tumors, or stroke.

SIGNS AND SYMPTOMS

- Loss of balance.
- Difficulty walking.
- Impaired ability to grasp objects.
- Decrease in movement precision.
- Muscle fatigue.
- Lack of coordination.

TRIPARESIS:

Triparesis is a medical condition, similar to triplegia, but the major difference between the two is primarily that triplegia is total loss of function in three limbs, and triparesis denotes weakening of three limbs.

Triplegia is a medical condition characterized by the paralysis of three limbs. A person with triplegia can be referred to as triplegic. While there is no typical pattern of involvement, it is usually associated with paralysis of both legs and one arm — but can also involve both arms and one leg.

The condition is commonly associated with Cerebral palsy, although conditions such as Stroke can also lead to it. Triplegia has also been found to be due to an Increased intracranial proessure associated with hydrocephalous resulting from traumatic brain injury.

A similar condition is trtiparesis, in which the patient suffers from paresis in three limbs, meaning that the limbs are very weak, but not completely paralyzed.

TETRAPARESIS OR QUADRIPARESIS :

Tetraplegia, also known as **quadriplegia**, is paralysis caused by illness or injury that results in the partial or total loss of use of all four limbs and torsol paraplegia is similar but does not affect the arms. The loss is usually sensory and motor, which means that both sensation and control are lost. **Tetraparesis** or **quadriparesis**, on the other hand, means muscle weakness affecting all four limbs. It may be flaccid or spastic.

SIGNS AND SYMPTOMS :

- Impairment of the limbs
- Impairment in controlling bowel and bladder
- Impairment in digestion, breathing and other autonomic functions numbness
- Reduced sensation or burning neuropathic pain
- Spasticity

DIAGNOSIS :

Diagnosis as spastic or peripheral paresis is based on clinical data.

- X-ray, magnetic resonance and computed tomography.
- Two-Dimensional echoencephalography used for infants under 1 year.
- Radiography of the skull, subarachnoid space and meninges.
- Radioisotope methods of diagnosis.
- Ultrasonic dopplersonography.

The most common methods, diagnosis is devoted to electron diffraction. This technique is extremely important, as it helps to distinguish and diagnose flaccid and spastic paresis. It reveals specific changes in the anterior horn of the spinal cord lesions and neuropathies, absent with UMNS. In addition, electron diffraction causes a reflex

reaction of the muscles, which is called the H-reflexes. Under normal condition the patient respond only the calf muscles. While in spastic paresis react all paretic muscles.

TREATMENT OF PARESIS:

Usually primary manifestation of paresis is always considered a certain discomfort in muscles. In the absence of necessary treatment it is not excluded that such serious disease as paresis will develop into full paralysis.

The main treatment usually consists in initial identification and further elimination of the main reason of developing of a disease. Special courses of massages which are urged to help with support of muscles in a tone as from constant partial immobilization they can be atrophied are in addition quite often shown. At treatment of different types of paresis will power of each patient and his determination has important value.

REHABILITATION

Rehabilitation is the main treatment of individuals with paresis. In all cases, the major aim of rehabilitation is to regain maximum function and quality of life. Both physical and occupational therapy can significantly improve the quality of life.

PHYSICAL THERAPY:

Physical therapy (PT) can help improve muscle strength & coordination, mobility (such as standing and walking), and other physical function using different sensorimotor techniques. Physiotheraphy can also help reduce shoulder pain by maintaining shoulder range of motion.Supportive devices, such as braces or slings, can be used to help prevent or treat shoulder subluxation in the hopes to minimize disability and pain. A treatment method that can be implemented with the goal of helping to regain motor function in the affected limb is constraint-induced movment therapy. This consists of constraining the unaffected limb, forcing the affected limb to accomplish tasks of daily living.

OCCUPATIONAL THERAPY:

Occupational therapists may specifically help with paresis with tasks such as improving hand function, strengthening hand, shoulder and torso, and participating in activities of daily living (ADLs), such as eating and dressing. Therapists may also

recommend a hand splint for active use or for stretching at night. OTs educate patients and family on compensatory techniques to continue participating in daily living, fostering independence for the individual - which may include, environmental modification, use of adaptive equipment, sensory integration, etc.

PROGNOSIS:

Sudden recovery from paresiS is very rare. Many of the individuals will have limited recovery, but the majority will improve from intensive, specialised rehabilitation. It is vital to integrate the affected child into society and encourage them in their daily living activities. With time, some individuals may make remarkable progress.

PREVENTION OF PARESIS:

The main prevention of paresis is rationing of loading after restoration of functions of muscles. Also it is recommended to avoid over cooling. At paresis of throat is necessary to exclude long stay in dusty rooms.

PROPERTIES OF TRIAL DRUG

INTERNAL MEDICINE : CHITRAMUTTI KUDINEER CHOORANAM CHUKKU

வேறு பெயர்:

அருக்கன், அதகம், ஆர்த்ரகம், உபகுல்லம், உலர்ந்த, இஞ்சி, கடுபத்திரம், சுக்கு, சுண்டி, சொண்டி, சௌபன்னம், சௌவர்ணம், நவசுறு, நாகரம், மநௌஷம், விச்வ பேஷஜம், விடமுடிய அமிர்தம், வேர்கொம்பு.[19]

Botanical name	**:**	Zingiber officinale
Family	**:**	zingiberaceare
Useful part	**:**	Rizome
Taste	**:**	Pungent
Potency	**:**	Hot
Division	**:**	Pungent
Action	**:**	Anti ulcer, Antifungal, Anti –oxidant activity, Muscular aches, pains sore throat, cramps, constipation, indigestion, vomiting, hyper tension. [20] Effects on Blood clotting, Effects on blood pressure[23], Laxative [24]
Phytochemicals	**:**	Cardiac glycoside, Alkaloids, Saponins, Flavanoids, Polyphenools, Reducing Sugar.[21]

Gingerol and ginerol related compounds -	The anti oxidant activity Anti inflammatory and Anti analgesic activity.
Paradol	Anti oxidant.
Shogol	Anti oxidant, Anti inflammatory activity.
Ginger flavanoids	Anti oxidant activity.
Ginger and its constituents shows	Antioxidant activity and prevent the damage of oxidative stress.
Flavanoids	improve the cardiac circulation[21]
Calcium	use as calcium supplement in incidence of infants or adults[21]

Minerals- Calcium, Sodium, Iron, Copper, Zinc, Magnese, Chromium, Cadmimum, Led Nicle Mercury[21]

Vitamin contents of ginger

Thiamin (B1), Riboflavin (B2), Niacin (B3), Panthenic acid (B5), Vitamin B6, Vitamin C, Vitamin E[22]

பொது குணம்:

வாதப் பிணிவிண றூதற் செவிவாய்
வலிதலை வலிகுலை வலியிரு விழிநீர்
சீதத் தொடுவரி பேதிப் பலரோ
சிகமலி முகமக முகமிடி கபமார்
சீதச் சுரம்விரி பேதச் சுரநோய்
தெறிபடுமெனமொழி குவர்புவி தனிலே
ஈதுக் குதவுமி தீதுக் குதவா
தெனும்விதி யிலைநவ சுறுகுண முனவே.[19]

(தேரையர் குணவாகடம்)

சூலைமந்தம் நெஞ்செரிப்பு தோடமேப பம்மழை
மூலம் இரைப்பிருமல் மூக்குநீர்-வாலகப
தோடமதி சாரந் தொடர்வாத குன்மநீர்த்
தோடம்ஆ மம்போக்குஞ் சுக்கு.

(அகத்தியர் குணவாகடம்)

Medicinal uses: It is used to treat dyspepsia, throat complaint , chronic vatha diseases, gastro intestinal and respiratory disease.

ARATHAI

வேறு பெயர்	**:**	சிற்றரத்தை, பேரரத்தை[25]
Botanical name	**:**	Alpinia officinarum
English Name	**:**	Galangal the lesser
Family	**:**	zingiberaceare
Useful part	**:**	Rizome
Taste	**:**	Pungent
Potency	**:**	Hot
Division	**:**	Pungent
Action:		Expectorant, Febrifuge, Stomachic.

Phytochemicals : volatile oil, diaryheptanoid , sterol and flavonoids , Galangoflavonoid 1'S-1'-acetoxychavicol acetate, phenylpropanoids and phydroxybenzaldehyde , acetoxycineoles, β-Sitosterol diglucoside (AG-7) and β-sitsteryl Arabinoside (AG-8) , The phenylpropanoids glucopyranosides, (glucopyranoside, and glucopyranoside [26]

Minerals and Vitamins - Sodium, Iron, Vitamin A, Vitamin C[27]

Ethonobotanic action: Activity Smoothening the blood flows in our body, As a cure for diarrhea[27]**.**antioxidant, antibacterial, anti-inflammatory, anticancer, antiproliferative, inhibition of enzymes, as well as the inhibition of nitric oxide production. [28.] Cardio protective, hepato protective, Analgesic, Neuro protective[29], Antihyperlipidemic bioactivity[30], Anti hyperlipidimic [31]

பொதுகுணம்:

தொண்டையிற்கட் டுங்கபத்தைத்த தூரத் துரத்திவிடும்
பண்டைச்சீ தத்தைப் பறக்கடிக்கும் - கெண்டைவிழி
மின்னே! கரப்பனைவே றாக்கும் பசிகொடுக்கும்
சொன்னோம் அரத்தைச் சுகம்.[25]

(அகத்தியர் குணவாகடம்)

மார்பை யடர்பிணிசு வாசகா சம்மூலம்
சோபைதட்டச் சூர்வாத சோணித நோய் - தீபச்
சுரத்தை யடுப்புாட்பல் தூருறுகண் நேரின்
அரத்தை யெடுதுகள தாம்

(தேரையர் குணவாகடம்)

அரத்தையின் குணத்தைக்கேளீர் அக்கரஞ் சன்னி போக்கும்
உரத்தொரு இருமர் மாற்றும் ஓங்கிய உதிரம் போக்கும்
இரைத்திடுங் காச மெட்டும் விஞ்சிய ஷயமுந் தீரும்
சுரத்தையும் நீக்கு மென்று சொன்னமு வேத நூலே.

(ஏடு)

சிற்றரத்தையின் சிறப்பு

வாதபித் தங்கரப்பான் வாதஞ் சிரோரோகஞ்
சோர்ந்தகப முத்தோடஞ் சீதமொடு - நேர்ந்தசுரம்
மற்றரத்தைக் காட்டி வருமிரும லுந்தீரும்
சிற்றரத்தை வன்மருந்தால் தேர்.

(தேரையர் குணவாகடம்)

VELLULI

வேறு பெயர் : இலசுனம், காயம், உள்ளி, பூண்டு, வெள்ளைப்பூண்டு,[32] வெள்வங்காயம்

Botanical Name : Alluim sativum

English Name : Garlic

Family : Amaryllidaceae

Organoleptic Character

Taste : Pungent

Potency : Hot

Division : Pungent

பொதுகுணம்:

சன்னியொடு வாதந் தலைநோவு தாள்வலி
மன்னிவரு நீர்ககோவை வனிசீதம்- அன்னமே!
உள்ளுள்ளி கண்பாய் உளைமூல ரோகமும் போம்
வெள்ளுள்ளி தன்னால் வெருண்டு.[32]

(அகத்தியர் குணவாகடம்)

Actions:

Carminative , Tonic , Alterative , Stimulant ,Expectorant , Diuretic , Anthelmintic.

Phytochemicals: Flavanoids, Sulphur containing compounds: Dially sulphate, .[33] Allicin, Alliin, Ajoene, enzymes-allicinase, B vitamins, Minerals, Flavanoids, β- Carotene, Niacin, Riboflavin, Thiamin, Protein, Volatile oil, Vitamin A, B1, B2 and C Calcium copper, germanium, iron, magnesium,. Manganese, phosphorous, phytoncides, potassium, selenium, unsaturated aldehydes Zinc and enzymes.[34] Carbohydrate[35]

Activity:

Cardio protective, Neuro protective, Anti thrombotic, Anti oxidant, Anti hyper tensive, Anti hyper lipidimic[36] , Effect on Protein and Fat profile[37]

CITTRAMUTTI

வேறுபெயர் **:** சிறுந்தொட்டி, சிறுந்தொட்டை, சிறு குறுற்தொட்டி, சிற்றாமுட்டி[38]

Botanical Name **:** Pavonia zeylanica

English Name **:** Yellow sticky Mallon

Family **:** Plumbaginaceae

Useful Part **:** whole plant

Organoleptic Character

Taste **:** Astringent

Potency **:** Coolant

Division **:** Sweet

Action **:** Emollient

பொதுகுணம்:

அத்தி சுரம்முதல் அனந்தசுரம் பித்தமும் போம்
மெத்த விழிக்கெரிளயாம் வீறுதயி-லத்திறகாம்
நற்றா மரைத்திருவு நாடு மெழிற்றிருவே!
சிற்றாமுட் டித்துரைச் செப்பு.[38]

(அகத்தியர் குணவாகடம்)

Phyto chemicals: free radical scavenging molecules, such as vitamins, terpenoids, phenolic acids, lignins, stilbenes, tannins, flavonoids, quinones, coumarins, alkaloids, amines, betalains, and other metabolites, which are rich in antioxidant activity.[39]

Ethanobotanic Action:

Antioxidant, anti-atherosclerotic, antitumor, cardiovascula[39]

ULUNTHU

வேறுபெயர்	**:**	உளுந்து, மாடம், மாஷம்[40]
Botanical Name	**:**	Vigna mungo
English Name	**:**	Black gram
Family	**:**	Fabaceae
Useful Part	**:**	Seed.

Organoleptic Character

Taste	**:**	Sweet
Potency	**:**	Coolant
Division	**:**	Sweet
Action	**:**	Demulcent, Refrigerant, Aphordisiac, Galactagogue, Nervine tonic, Nutritive.
Phytochemicals	**:**	Antioxidant, Anti inflammatory, Protective action for Neuro degernative disease.

பொதுகுணம்:

செய்யஎளுந் திற்குச் சிலேத்மவனி லற்பிறக்கும்
வெய்யிபத்தம் போமந்தம் வீறுங்காண்-மெய்யதனில்
என்புருக்கி தீரும் இடுப்புக் கடுபலமாம்
முன்பு விருத்தியுண்டாய் முன்.[40]

(அகத்தியர் குணவாகடம்)

Phytochemicals: Nutritional value – Carbohytrates, Dietary fibers, Fat, Protein, Vitamins- Thiamine (B1), Ribo flavin (B2), Niacin (B3), Panothenic acid (B5), Vitamin (B6), Folate (B9), choline, Vitamin C,E, K, Amnio acids[41.] Minerals Calcium, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Zinc, copper, Flavonoids, Terpenoids, quinon, sterols, oil and fat[42]. saponoin, alatonine, tocopherol,tochotrienol,, linolenic acids[44]

Ethanobotanic Action : Against oxidative stress,, better stress tolerance[42] The grip strength, Locomotion activity and hanging time were also significantly improved[43] The seeds are sweet, laxative, aphrodisiac, tonic, appetizer, paralysis, rheumatism and affections of the nervous syste.[44]

VEPPA ENNAI

வேறுபெயர் **:** அரிட்டம், துத்தை, நிம்பம், பாரிபத்திதரம், பிசுமந்தம், வாதாரி, [45] வேப்பு

Botanical name **:** Azadiracta indica

English name **:** Neem oil

Family **:** Meliaceae.

Organoleptic Character

Taste **:** Bitter

Potency **:** Hot

Division : Pungent

Used parts **:** Seeds

பொதுகுணம்:

வாதம்போம் பித்தமிகும் மாறாக்கி ரந்தியொடு
மோதுகரப் பான்சிரங்கு முன்னிசிவும்-ஓதுடலின்
நாப்ப ணுறுசுரமு நாடுசன்னி யுந்தொலையும்
வேப்பநெய் யென்றொருக்கால் விள்ளு.

(அகத்தியர் குணவாகடம்)

Action **:** Anthelmintic, Stimulant, Antiseptic, Insecticide, Discutient.

Phytochemicals **:** Nimbin, Nimbinin, Nimbidin[47]

Ethanobotanic Action **:** Anti inflammatory, Reduce the Muscle pain[46], protects against free radicles, Balance pita and kapha doshas[47]

VETRELAI

வேறு பெயர்: வெற்றிலை, தாம்பூலம், தாம்பூலவள்ளி, திரையல், நாகவல்லி, மெல்லிகை, வெள்ளிலை, மெல்லடகு.[48]

Botanical name **:** Piper betle

English name **:** Betal leaf

Family **:** Piperaceae.

Organoleptic Character

Taste **:** Carminative, Hot

Potency **:** Hot

Division	**:**	Hot
Used parts	**:**	Leaf
Actions	**:**	Stimulant, Carminative, Astringent, Aphrodisiac, Antiseptic, Febrifuge, Stomachic, Galactagogue, Sialogogue.

Phyto chemicals: Nutients, Antioxidants, minerals, vitamins phytochemicals, proteins, fat fibers, calcium and iron etc. Flavanoids, Tannis, Saponins, Alkaloids, Terphenoids. Neurological disease- chewing betel nut with tobacco was a significant predictor for Meige's Syndrome, a neuro degernative disease.[49]

Chemical constituents:

Poly Phenolic compounds, alkakids, tannins, arecoline, areaidine, and fibers. This is one and one of 54 Areca species known to contains alkaloids[50]

Pharmacological activites:

Blood pressure regulating activity, Hypo glycemic activity, Antidepressant activity, Anti convulsant activity, Central nervous system stimulant,[50] Anti oxidant, Anahgesic, Anticholesteroloemic action[54]

Nutritional composition: Water, Protein, Fat, Minerals, Fiber, Chlorophyll, Carbohydrate, Engergy, Essential oils, Iodine, Iron, Calcium, Potassium, Nicotinic acid, Vitamin C, Vitamin A, Thiamine, Riboflavin, Tannin, Nitrogen, Phosphorus[54]

பொதுகுணம்:

ஐயம் அறுங்காண் அதன்காரங் கொண்டக்காற்
ஐபயச் சயித்தியம்போம் பைந்தொடியே!- மெய்யின்
கடியின் குணம் போகங் காரவெற்றி லைக்குப்
படியுமுர் தோடமிதைப் பார்.

(அகத்தியர் குணவாகடம்)

PAAKU

வேறு பெயர் **:** பாக்கு, கழுகு,மரம், சுந்தி, அடைக்காய்.[51]

Botanical name **:** Areca catechu

English name **:** Betel – nut - palm

Family **:** Arecaceae.

Organoleptic Character

Taste **:** Astringiant

Potency **:** Hot

Division : Carminative

Used parts **:** Nut

Actions **:** Stimulant, Astringent, Taenifuge.

Actions **:** Stimulant, Astringent, Taenifuge.

Phytochemicals : Arecaine. arecaine, arecoline, arecaidine, arecolidine, guvacoline, guvacine, isoguvacine,tannin, red fat, resin, kernel, gallic acid and a gum.[52]

Ethanobotanic Action: Laxative, antioxidant, antiseptic, [52]Astringent, Mild stimulant[53]

பொதுகுணம்:

கந்தியின் காய்தினக் கயத்தினை யறுத்திடும்.

(தேரையர் கரிசல்)

PANAI VELAM

வேறுபெயர் **:** பனை, தாலம், கரும்புறம், ஏடகம், காமம், தருவிராகன், தாளி

Botanical name **:** Borassus flabellifer

English name **:** Palmyra palm

Family **:** Arecaceae.

Organoleptic Character

Taste **:** Sweet

Potency **:** coolant

Division **:** Sweet

Used parts **:** Juice

Actions : Demulcent, Diuretics, Atringent, Aphordisiac, Nutient, Refrigerant, Stimulant, Antiphlogistic.

பொதுகுணம்:

---------- தங்குபனை
வெல்லத்தால் வாதபித்தம் வீறுகபஞ் சன்னிநோய்
வல்லருசி குன்மமறு மால்

(அகத்தியர் குணவாகடம்)

Phytochemicals: Vital vitamins and minerals, Iron, Phosphorus, Calcium[55]

Ethanobotanic actions: Relieve constipation, blood purifier, prevents free radicals, increase hemoglobin blood, relief from cramp, maintaining the normal body temperature, controls the blood pressure, Relives the aches and pain, strengthen the bone, building the muscle[55]

INTERNAL MEDICINE : CHITRAMUTTI KUDINEER

CHUKKA (*Zingiber officinale***)**

ARATHAI (*Alpinia officinarum***)**

ULUNTHU (*Vigna mungo*)

POONDU (*Alluim sativum*)

ARATHAI (*Pavonia zeylanica*)

EXTERNAL MEDICINE: BAALA VAATHA THYLA

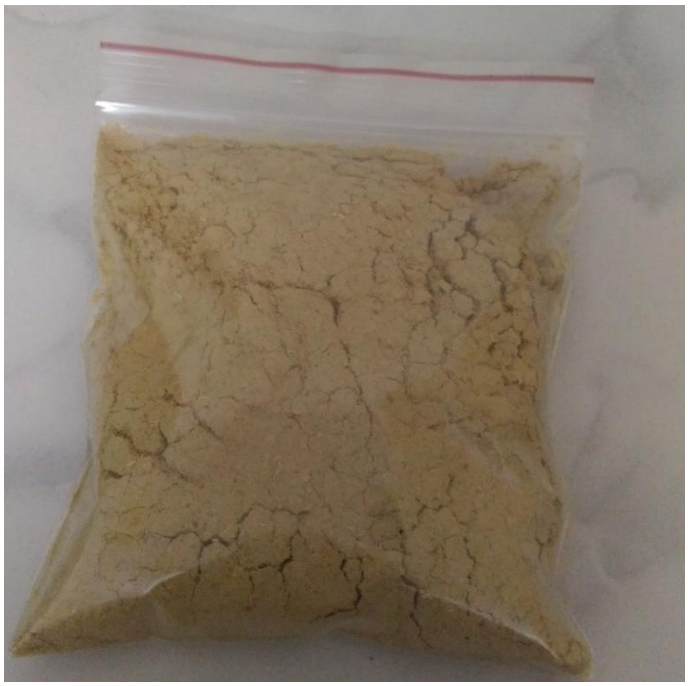
VETRELAI *(Piper betle)*

PAAKU (*Areca catechu)*

VEPPENNAI (*Azadiracta indica*)

PREPARED MEDICINE

CHITRAMUTTI KUDINEER CHOORANAM (INTERNAL)



BAALVAATHA THAILAM (EXTERNAL)

MATERIALS AND METHODS

STANDARD OPERATIVE PROCEDURE

SOURCE OF RAW DRUGS:

The required raw drugs for preparation of "CHITRA MUTTI KUDINEER" (Internal) and "BAALA VAATHA THYLAM" (External) was purchased from a well reputed country shop. That raw drugs were authenticated by the competent Authority of Medicinal Botany department. Then the medicines were purified and prepared in Gunapadam Laboratory of National Institute of Siddha. After proper purification, the prepared medicines was authenticated by the guide and concerned head of the department for its completeness.

INTERNAL MEDICINE: CHITRAMUTTI *KUDINEER CHOORANAM*

Ingredients:

Chukku (*Zingiber officinale*) Rhizome	-	21/2 Kalanju (12.5g)
Arathai (*Alpinia officinarum*) Rhizome	-	21/2 Kalanju (12.5g)
Poondu (*Allium sativum*) Bulb	-	21/2 Kalanju (12.5g)
Chitramutti ver (*Pavonia zeylanica*) Root	-	21/2 Kalanju (12.5g)
Ulunthu (*Vigna mungo*) Seeds	-	21/2 Kalanju (12.5g)
Thaneer	-	2 padi (1120ml)

PURIFICATION OF RAW DRUGS :

Purification of Chukku:

The know quantity of chukku is taken then Soaked in lime stone water for a period of time and then dried in shade. Then the outer skin is peeled off .

Purification of Arathai:

The outer skin of arathai is peel off and made in to small pieces and then dried in sunlight

Purification of Poondu:

The outer skin of poondu is peeled and made in to small pieces

Purification of Chitramutti ver:

The outer covering of chittra multi was peeled out and made into pieces and then dried in sunlight.

Purification of Ulunthu:

ulunthu was washed in running water and the outer skin was peeled off [18]

Preparation method :

2 kalanju of Purified Chukku (*Zingiber officinale*), Arathai (*Alpinia officinarum*), Poondu (*Allium sativum*), Chitramutti ver (*Pavonia zeylanica*), Ulunthu (*Vigna mungo*) was taken. They are dried and made into a coarse powder and then soaked it in vessel containing water of 2 padi and heated till it comes to 1/8 th of its volume. [12]

Drug Storage:

The kudineer chooranam was stored in air tight container

Dose: Dosage was advised as 5-15 ml twice a day, according to the age of the children.

Adjuvent : Canesuga(medicine was advised to take along with palm jaggery)

Duration : 1Mandalam (45Days) (kudineer for the treatment of baalavaatham was advised to take for 1Mandalam (45Days))

Dispensing :

The kudineer chooranam was made in to decoration and provided to IP patients and for OP patient Chooram was packed and dispensed in clean packets.

EXTERNAL MEDICINES: BAALA VAATHA THYLAM

Ingredients:

Paaku (*Areca catechu*)	-	1palam (35g)
Vetrelai (*Piper betttle*) juice	-	672 ml
Neem oil (*Azhadiracta indica*)	-	672 ml

Method of preparation:

The areca catechu was cleaned and made into paste form by adding water and then the filtered piper bettle juice and Neem oil was added with the paste and allowed it to boil till it attained the suitable consistency and, finally filtered and stored in clean container.[13]

Drug storage:

The prepared medicated oil is stored in a clean and dry air tight container.

Method of Application:

Advised to apply the medicated oil over the affected area and then massage gently once in a day

Duration : The medicine was advices to use for 45 days

PRE CLINICAL STUDY

PHYSICO CHEMICAL ANALYSIS OF CHITRA MUTTIE KUDINEER CHOORANAM

1. Loss On Drying:

An accurately weighed 2g of **Chitramutti kudineer chooranam** formulation was taken in a tarred glass bottle. The curde drug was heated at 105^0c for 6 hours in an oven till a constant weight. The percentage moisture content of the sample was calculated with reference to the shade dried material.

2. Determination of total ash:

Weighed accurately 2g of **Chitramutti Kudineer Chooranam** formulation was added in crucible at a temperature 600^0c in a muffle furnace till carbon free ash wash obtained. It was calculated with reference to the air dried drug.

3. Determination of acid insoluble ash:

Ash above obtained, was boiled for 5min with 25ml of IM Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper burnt to constant weight in a muffle furnace. The percentage of acid insoluble as was calculated with reference to the air dried drug.

4.Determination of water soluble ash:

Total ash 1g was boiled for 5min with 25ml water and insoluble matter collected on an ash less filter paper was washed with hot water and ignited for 15min at a temperature not exceeding 45^0c in a muffle furnance. The amount of soluble ash is determined by drying the filtrate.

5. determination of water soluble Extracive:

5gm of air dried drug, coarsely powered **Chitramutti Kudineer Chooranam** was macerated with 100ml of distilled water in a closed flask for twenty- four hours, shaking frequently. The solution was filtered and 25ml of filtrated was evaporated in a tarred flat bottom shallow dish, further dried at 100^0c and weighted. The percentage of water soluble extractive was calculated with reference to the air dried drugs.

6. determination of alcohol soluble extractive:

2.5gm of air dried drugs, coarsely powdered **Chitramutti Kudineer Chooranam** was macerated with 50ml. Alcohol in closed flask for 24 hrs. With frequent shaking, it was filtered rapidly taking precaution against loss of alcohol. 10ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 100^0c and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

PRELIMINARY PHYTOCHIAL CREENING CHIRUTTI KUINEER CHOORANAM

The preliminary phytochemical screening test w carried out for each extracts of **Chitramutti Kudineer Chooranam** as per the standard procedure.

1.Detection of alkaloids:

Extracts were dissolved individually in dilute Hydrochloric acid and filtered.

a) Mayer's Test: Filtrates were treated with Mayer's reagent (Potassium Mercuric Iodide). Formation of yellow coloured precipitate indicates the presence of alkaloids.

b) Wager's Test: Filtrates were treated with Wagner's reagent (Iodine in Potassium Iodide). Formation of brow/reddish precipitation indicates the presence of alkaloids.

c) Dargendroff's Test: Filtrates were treated with Dargendroff's reagent (solution of Potassicum Bismuth Iodide). Formation of red precipitation indicates the presence of alkaloids.

d) Hager's Test: Filtrates were treated with Hager's reagent (saturated picric acid solution). Presence of alkaloids confirmed by the formation f yellow colored precipitation.

2. Detection of carbohydrates:

Extracts were individually in 5ml distilled water and filtered. The filtrates were used to test for the presence of carbohydrates.

a) Molisch's test:

To 2ml of plant sample extract, two drops of alcoholic solution of α- naphthol are added. The mixture is shaken well and few drops of concentrated sulphuric acid is added slowly along the side of test tube. A violet ring indicates the presence of carbohydrates.

b) Benedict's Test:

Filtrates were treated with Benedict's reagent and heated gently. Orange red precipitation indicates the presence of reducing sugars.

3. Detection of glycosides:

Extracts were hydrolyzed with diluted HCL, and then subjected to test for glycosides.

a) Modified Borntrager's Test: Extracts were treated with Ferric Chloride solution and immersed in boiling water for about 5 minutes. The mixture was cooled and extracted with equal volumes of benzene. The benzene layer was separated and treated with ammonia solution. Formation of rose-pink colour in the ammonical layer indicates the presence of anthranol glycoside.

b) Cardiac glycoside (Keller- Killiani test): Extract was shaken with distilled water (5ml). To this, glacial acetic acid (2ml) containing a few drops of ferric chloride was added, followed by H2SO4 (1ml) along the side of the test tube. The formation of brown ring at the interface gives positive indication for cardiac glycoside and violet ring may be appear below the brown ring.

4. Detection of saponins:

a) Froth Test: Extracts were diluted with distilled water to 20ml and this was shaken in a graduated cylinder for 15minutes. Formation of 1cm layer of foam indicates the presence of saponins.

b) Foam Test: 0.5gm of extracts was shaken with 2ml of water. If foam produced persists for ten minutes it indicates the presence of saponins.

5. Detection of phytosterols:

a) Salkowski's Test: Extracts were treated with chloroform and filtered. The filtrates were treated with few drops of conc. Sulphuric acid, shaken and allowed to stand. Appearance of golden yellow colour indicates the presence of triterpenes.

6. Detection of phenols Ferric Chloride Test:

Extracts were treated with 3- 4 drops of ferric chloride solution. Formation of bluish black colour indicates the presence of phenols.

7. Detection of tannins Gelatin Test:

The extract is dissolved in 5ml of disilled water and 2ml of 1% solution of Gelatin containing 10% NaCl is added to it. White precipitates the presence of phenolic compounds.

8. Detection of Flavanoids:

a) Alkaline Reagent Test: Extracts were treated with few drops of sodium hydroxide solution. Formation of intense yellow colour, which becomes colourless on additional of dilute acid, indicates the presence of flavonoids.

b) Lead Acetate Test: Extracts were treated with few drops of lead acetate solution. Formation of yellow colour precipitation indicates the presence of flavonoids.

9. Detection of proteins and aminoacids:

a) Xanthoproteic Test: The extracts were treated with few drops of conc. Nitric acid. Formation of yellow colour indicates the presence of proteins.

b) Ninhydrin Test: To the extract, 0.25% w/v ninhydrin reagent was added and boiled for few minute. Formation of blue colour indicates the presence of amino acid.

10. Detection of diterpenes copper Acetate Test:

Extracts were dissolved in water and treated with 3-4 drops of copper acetate solution. Formation of emerald green colour indicates the presence of diterpenes.

11. Gum and Mucilages:

To 1ml of extract add 2.5ml of absolute alcohol and stirring constantly. Then the precipitate was dried in air and examine for its swelling properties. Swelling was observed that will indicate presence of gum and mucilage.

12. Test for Fixed oils and Fats:

a. Spot test: A small quantity of extract is pressed between two filter papers. Oil stain on the paper indicates the presence of fixed oils.

13. Test for Quionones:

Extract was treated with sodium hydroxide blue or red precipitate indicates the presence of Quiones.

The premilinary phytochemical studies of acqueous extract of **Chitramutti Kudineer Chooranam** were done using standard procedures. The present study reveals that the bioactive compounds were present in all the extracts of **Chitramutti Kudineer Chooranam**.

BIOCHEMICAL EVALUATION

Experimental procedure:

5 g of Chittra Mutti Kudineer Chooranam was taken in a 250 ml of clean beaker and 50ml of distilled water was added to it. Then it was boiled well for about 10 min. Then it is allowed to cool and filtered in a 100 ml volumetric flask and made up to 100 ml with distilled water. This preparation is used for the qualitative analysis of acidic/ basic radicals and biochemical constituents in it.

Preparation of extract:

5gm of Chittra Mutti Kudineer Chooranam is weighed accurately and placed in a 250ml clean beaker and 50ml of distilled water was added with it. Then it was boiled well for about 10 minutes. Then it was allowed to cool and filtered in a 100ml volumetric flask and made up to 100ml with distilled water. The bio-chemical analysis of Chittra Mutti Kudineer Chooranam was done at Biochemistry lab, National Institute of siddha, Chennai-47.

Preliminary test for Copper, Sodium, Silicate and Carbonate:

- **Test for Silicate:**
  A little (500mg) of the sample is shaken well with distilled water.
  A little (500mg) of the sample is shaken well with con. HCl/Con. H2So4.
- **Action of Heat:**
  A small amount (500mg) of the sample is taken in a dry test tube and heated gently at first and then strong.
- **Flame Test:**
  A small amount (500mg) of the sample is made into a paste with con. HCl in a watch glass and introduced into non-luminous part of the Bunsen flame.
- **Ash Test:**
  A filter paper is soaked into a mixture of sample and dil. cobalt nitrate solution and introduced into the Bunsen flame and ignited.

Test For Acid Radicals

- **Test For Sulphate**: 2ml of the above prepared extract was taken in a test tube and 2ml of 4% dil. ammonium oxalate solution was added.
- **Test For Chloride:** 2ml of the above prepared extracts was added with 2ml of dil-HNO3 until the effervescence ceases off. Then 2 ml of silver nitrate solution was added.
- **Test For Phosphate:** 2ml of the extract was treated with 2ml of con.HNo3 and 2ml of dil. ammonium molybdate solution.
- **Test For Carbonate**: 2ml of the extract was treated with 2ml dil. magnesium sulphate solution
- **Test For Nitrate:**1gm of the substance was heated with copper turning and concentrated H2SO4 and viewed the test tube vertically down.
- **Test For Sulphide:** 1gm of the substance was treated with 2ml of con. HCL □
- **Test For Fluoride & Oxalate**: 2ml of extract was added with 2ml of dil. Acetic acid and 2ml dil. calcium chloride solution and heated.
- **Test For Nitrite**: 3drops of the extract was placed on a filter paper, on that-2 drops of dil. acetic acid and 2 drops of dil. Benzidine solution were placed.

Test For Basic Radicals

- **Test For Lead:** 2ml of the extract was added with 2ml of dil. potassium iodine solution.
- **Test For Copper**: One pinch (50mg) of substance was made into paste with con. HCl in a watch glass and introduced into the non-luminous part of the flame.
- **Test For Aluminium:** In the 2ml of extract dil. sodium hydroxide was added in 5 drops to excess.
- **Test For Iron**: a.To the 2ml of extract add 2ml of dil. ammonium solution b. To the 2ml of extract 2ml thiocyanate solution and 2ml of con HNo3 is added
- **Test For Zinc:** In 2ml of the extract dil.sodium hydroxide solution was added in 5 drops to excess and dil.ammonium chloride was added
- **Test For Calcium**: 2ml of the extract was added with 2ml of 4% dil.ammonium oxalate solution
- **Test For Magnesium:** In 2ml of extract dil.sodium hydroxide solution was added in drops toexcess.

- **Test For Ammonium**: In 2ml of extract 1 ml of Nessler's reagent and excess of dil. sodium hydroxide solution were added.
- **Test For Potassium:** A pinch (25mg) of substance was treated with 2ml of dil. sodium nitrite solution and then treated with 2ml of dil. cobalt nitrate in 30% dil. glacial acetic acid.
- **Test For Sodium:** 2 pinches (50mg) of the substance was made into paste by using HCl and introduced into the blue flame of Bunsen burner.
- **Test For Mercury:** 2ml of the extract was treated with 2ml of dil. sodium hydroxide solution.
- **Test For Arsenic**: 2ml of the extract was treated with 2ml of dil. sodium hydroxide solution.

Other constituents

- **Test For Starch :** 2ml of extract was treated with weak dil. iodine solution
- **Test For Reducing Sugar:** 5ml of Benedict's qualitative solution was taken in a test tube and allowed to boil for 2 minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes.
- **Test For The Alkaloids:** a) 2ml of the extract is treated with 2ml of dil. potassium iodide solution. b) 2ml of the extract is treated with 2ml of dil.picric acid.
- **Test For Tannic Acid:** 2ml of extract was treated with 2ml of dil. ferric chloride solution
- **Test For Unsaturated Compound:** In the 2ml of extract 2ml of dil. Potassium permanganate solution was added.
- **Test For Amino Acid:** 2 drops of the extract was placed on a filter paper and dried well, and then 20ml of Burette reagent was added in it.

TOXICITY STUDIES OF CHITTRA MUTTI KUDINEER

To evaluate the safety profile of Chittra mutti kudineer short term toxicity study carried out as followed. The principles of laboratory animal care were followed and the Institutional Animal Ethical Committee approved the use of animals and the study design. IAEC registered and approval number: (IAEC). (NIS/IAEC/-IV/06/05012017 dated 05.01.2017) for **Acute toxicity study.**

Experimental Animals:

Species	:	Wistar albino Rats
Sex	:	Male and Female
Age/weight at start of test	:	6 weeks/140-160g b.wt
Acclimatization Period	:	7 days prior to dosing
Housing	:	Individually in polypropylene cages and bedding with Husk
Husbandry	:	12-h light/12-h dark artificial photoperiod/Room temperature 22°C±3°C and relative Humidity30–70%
Feed and Water	:	Rodent pelleted feed RO purified water Ad libitum Identification
	:	Animals were kept in polypropylene Cages and numbered

Experimentation Details of Acute Toxicity Study:

Groups/Treatment regimen	:	Grouped by randomisation
Test Guideline	:	WHO guideline
Length of exposure to test substance	:	Single dose (1Day)
No of Animals	:	5 Female+ 5 Male / group
Control group	:	Vehicle (palm sugar)
Test groups	:	Chitra mutti kudineer 2 ml/kg.b.wt

The wistar albino rats of both sex weighing 150-200g was obtained from authorized animal breeders of animal laboratory in TANUVAS, Madavaram, Chennai and stocked in animal house at National Institute of Siddha, Chennai. Animals were housed in cages at 22°C±3°C and relative humidity 30–70% and have free access to

standard rat pellet diet (Sai Meera Foods Pvt. Ltd., Bangalore). The animals are dosed with Chittra Mutti Kudineer by oral for one day and monitored for behavioural parameters for the first 4 hours after drug administration. Body weight of the animal was monitored every week and recorded . Animals were weighed and sacrificed under the injection of Pentothal Sodium on the 15thday of the Study period. The toxicological effect was assessed on the basis of mortality.

Preparation of Test Drug Doses:

Groups	Number of rats
Group I: palm sugar	10 (5M+5F)
GroupII: Chittramutti Kudineer(2ml(10X)*/kgb.wt)	10 (5M+5F)

*****(1x=2.7ml) Total 20(10M+10F)

Route of administration

Oral route were selected because it is the normal route of clinical administration.

Administration of Dose

The animals were kept in fasting (only food was with held) for 12 hrs and weighed prior to dosing. Three animals were used for each step. A single dose of the solution (2ml/kg) was consecutively administered by oral gavage using intubation cannula. Food was with held for another 4 hrs after dosing and administration of drug. As per the guide line the starting dose level was taken as 2ml/kg body weight.

Observations:

- Observations were made and recorded systematically and continuously observed after the substance administration as per the guidelines.
- ½ hour, 1 hour, 2 hours, 4 hours and up to 24 hours observation
- All rat were observed twice daily on week days for 14 days
- Body weight was weighted once in a week
- Feeded once a day

Cage side observation :

The animals were monitored for behavioral parameters like, Alertness, Aggressiveness, pilo erection, Grooming, Gripping, Touch Response, Motor Activity, Tremors, Convulsions, Muscle Spasm, Catatonia, Muscle relaxant, Hypnosis Analgesia, Lacrimation, Exophthalmos, Diarrhea, Writhing, Respiration, Mortality

Necropsy:

Necropsy was done and gross examinations of the external surface of the body, all orifices, cranial, thoracic and abdominal cavities and their contents. Brain, eyes, lungs, heart, spleen, liver, kidneys, adrenals, uterus of all animals were observed and noted.

CLINICAL STUDY

STUDY TYPE :

An open clinical trial

STUDY PLACE

OPD & IPD of Ayothidass pandithar, hospital,

National Institute of Siddha, Chennai-47

STUDY PERIOD

18 months

SAMPLE SIZE

30 children (Both in IPD and OPD)

SUBJECT SELECTION:

Children with symptoms of Baala Vatham was subjected to screening by screening Profoma. After screening they were enrolled for the study fulfilling the inclusion criteria as said below:

INCLUSION CRETERIA:

1.Children of age group under 2-12 years

2. Mono/Para/ Hemi/Tri/Double/Tetra/Quadri paresis

3. Weakness of one or more limbs

4. Loss of power and tone in muscles of the affected limb

5. Difficulty/ Inability in using the affected limb against gravity and resistance

6. Difficulty in using the affected limb

EXCLUSION CRETERIA:

1. H/o Epilepsy

2. Severe Aggressiveness with ADHD

3. Autism

4. H/o Cerebral palsy

5. Congenital Heart Disease

6. Any other serious illness

WITHDRAWL CRITERIA:

- Intolerance to the drug and development of adverse reactions during drug trial.
- Poor patient compliance and defaulters.
- Patient turning unwilling to continue in the course of clinical trial.
- Occurrence of any other systemic illness

TESTS AND ASSESMENTS

A. Clinical assessment

B. Siddha investigations

C. Modern aspects

A.CLINICAL ASSESMENT

1) Baala Vatham involving in one or more limbs
2) Weakness of the affected limb
3) Loss of power and tone in muscles of the affected limb
4) Difficulty/Inability in using the affected limb against gravity and resistance
5) Difficulty in using the affected limb
6) Muscle spasticity present in the affected limb

B. SIDDHA SYSTEM EXAMINATION:

1) Naadi
2) Sparisam
3) Naa
4) Niram
5) Mozhi
6) Vizhi
7) Malam
8) Moothiram a. Neer kuri: b. Nei Kuri:

C. MODERN ASPECT

1) Bulk of the muscle
2) Muscle tone
3) Muscle power
4) Reflexes
5) Aswarthscale
6) Modefied aswath saale

DATA COLLECTION FORMS:

Required information will be collected from each patient by using following forms.

1. Screening form (Form I)
2. Consent form (Form II)
3.Information sheet (Form III)
4. Assent form (Form IV)
5.Case report form (CRF) (Form V)
6.Drug compliance (Form VI)
7.Withdrawl (Form VII)
8.Adverse reaction (Form VIII)
9.Pharmaco vigilance form (Form IX)
10.Dietary advice form (Form X)

STUDY ENROLLMENT

Child visited the OPD of NIS with the clinical symptoms of BAALA VAATHAM was examined clinically. Based on the inclusion and exclusion criteria, they are enrolled for the study.

The Children who are going to be enrolled would be informed about the study, trial drug, possible outcomes and the objectives of the study in their vernacular language. After ascertaining the consent from their parents, informed consent would be obtained in written form.. Before enrolling the children the parents were informed about the study, trial drug, possible outcomes and the objectives of the study in their vernacular language. And got consent from their parents, informed consent was received in written form.

All these children were given unique registration card in which patient's Registration number of the study, Address, Phone number and Doctors phone number etc. was given, so as to report any complications.

Complete clinical history, complaints and duration, examination findings was recorded in the prescribed Proformas. Parents was advised to give the trial drug to the children with appropriate dietary advice.

CONDUCT OF THE STUDY:

The trial drug Chitra mutti kudineer chooranam (Internal) and Baala Vaatha thylam (External) is given for 45 days. OPD patients are adviced to visit the hospital once in 7 days. At each clinical visit prognosis was noted. For IPD patients the clinical assessment was done daily with the supervision of the faculty members in the Ward. The results was compared at the end of the study. At the end of the treatment, the parents was advised to visit the OPD along with their children for follow-up for observing any recurrence. Defaulters was not allowed to continue and was withdrawn from the study.

DATA ANALYSIS:

After enrolling the children in the study, a separate file was maintained for each and every children and all forms and other information was kept in the file. The screening forms was filed separately. The data entry was monitored by the Head of the department and faculties of the concerned department. All collected datas was statistically analysed by Senior Research Officer (Statistics) for logical errors and incompleteness of data to avoid bias.

ADVERSE EFFECTS/SERIOUS EFFECTS MANAGEMENT:

In this Study no adverse reactions Were observed during the course of treatment

OUTCOME OF THE RESULT:

The outcome of the result was assessed by Spasticity assessment scale (MODIFIED ASWORTH SCALE) before and after treatment. Paresis children are assessed by bulk of the muscle, muscle power, muscle tone, reflex, asworth scale and modified asworth scale.

OUTCOM E:

Bulk of the muscle : By measuring method

Normal nutrition\ Abnormal

Tone of the muscle: by Shaking the limb

Normal/ Hypertonia / Hypotonia

Power of the Muscle:

Upper limb and lower limb- Based on MCR grading

Grade 0 – Complete paralysis total paralysis (no power)

Grade 1 – Visible or palpable flicker or trace of contracture, not enough to move a joint

Grade 2 – Able to move eliminating the gravity

Grade 3 – Able to move against gravity but not against resistance

Grade 4 – Able to move against partial resistance

Grade 5 – Normal power

Reflex of the Muscles:

Superficial reflex :

Present/Absent

Deep tendon reflex: by grading

Grade 0 - Absent

Grade 1 – Sluggish, obtainable with reinforcement

Grade 2 – Readily electable, normal (like normal ankle jerk)

Grade 3 – Brisk/increased (like normal knee jerk)

Grade 4 – Exaggerated/associated with clonus (sustained/ill-substained)

Spasticity assessment : by using the Ashworth & Modified Ashworth scales

The Ashworth scale to assess the spastic paresis:

Grade 0 - No increase in tone

Grade 1 – Slightly increase in tone giving a catch when the limb is moved in flexion or extension

Grade 2 – More marked increase in tone but limb easily flexed

Grade 3 – Considerable increase in tone passive movements is difficult

Grade 4 – limb rigid in flexion or extension

The Modified Ashworth scale:

Grade 0 - No increase in tone – Score 4

Grade 1 – Slightly increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the ROM when the affected part(s) is moved in flexion or in extension – Score 3

Grade1+ slightly increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM – Score 2.5

Grade 2 – More marked increased in muscle tone throughout most of the ROM, but affected part(s) easily moved – Score 2

Grade 3 – considerable increase in muscle tone, passive movements is difficult – Score 1

Grade 4 – Affected part(s) rigid in flexion or extension – Score 0

PRE CLINICAL STUDY RESULTS AND OBSERVATIONS

PHYSICOCHEMICAL ANALYSIS OF CHITRAMUTTI KUDIEER CHOORANAM

S.No	Parameters	Percentage
1.	Loss on drying	5.37%
2	Total ash value	4.32%
3	Acid insoluble ash	Less than 1%
4	Water soluble ash	1.96%
5	Water soluble extrction	10.63%
5	Alcohol soluble etraction	16.4%

Inferance:

The Physiochemical analysiscarried out proves the percentage of Loss on drying, Total Ash value, Acid insoluble ash, Water soluble ash, Water soluble extraction, Alcohol soluble actions.

PRELIMINARY PHYTOCHEMICAL SCREENING CHITAMUTTI KUDINEER CHOORANAM

The preliminary phytochemical studies of aueous extract of **Chitramutti Kudineer Chooranam** were done using standard procedures. The present study reveals that the bioactive compounds were present in all the extracts of **Chitramutti Kudineer Chooranam.**

S.No	Phytochemicals	Test Name	H2O Extract
1.	Alkaloids	Mayer's Test	-ve
		Wagner's Test	-ve
		Dragendroff's Test	-ve
		Hager's Test	-ve
2.	Carbohydrates	Molish's Test	+ve
		Benedict's Test	+ve
3.	Glycoside	Modified Borntrager's test	-ve
		Keller killiani	-ve
4.	Saponin	Forth test	+ve
		Foam Test	-ve
5.	Phytosterol	Salkowski's Test	-ve
6.	Phenols	Ferric Chloride Test	-ve
7.	Tannins	Gelatin test	-ve
8.	Flavnoids	Alkaline Reagent Test	+ve
		Lead acetate Test	+ve
9.	Protenis and amino acids	Xanthoprotetic Test	-ve
10.	Diterpenes	Copper Acetate test	+ve
11.	Gum & mucilage	Extract + Alc0hol	-ve
12.	Fat & Fixed oil	Spot Test	-ve
13.	Quinones	NAOH + Extract	+ve

+ ve/- ve Present or absent if component tested.

Inferance:

The preliminary phytochemical analysis for basic phytochemical reveals that Chittramutti kudineer Chooranam contains Carbohydrates, Saponins, Flavanoids, Diterpenes, Quinones.

BIO CHEMICAL ANALYSIS

Colour, Nature of Chittra mutti kudineer Chooranam

S.no	Parameters	Results	Method of Testing
1.	Colour	Yellowish green	By visual
2.	Odour	Odour(Omam Smell)	Olfactory examination
3.	Solublity	Completely soluble	Qualitative
4.	Nature	Powder	By visual

Inferance:

The biochemical analysis of Chitra Mutti Kudineer appears yellowish green in color by the visual method, and its odour like as a Omam smell by olfactory examination method, Completely soluble in the qualitative method, Nature of power determine by the visual method.

Test for Basic radicals

S.no	Procedures	Chitra mutti kudineer Chooranam
1.	Test for Ammonium	-
2.	Test for Sodium	-
3.	Test for Magnesium	-
4.	Test for Aluminium	-
5.	Test for Potassium	+
6.	Test for Calcium	-
7.	Test for Ferrous iron	+
8.	Test for Copper	-
9.	Test for Zinc	-
10.	Test for Arsenic	-
11.	Test for Mercury	-
12.	Test for Lead	-

Inference

Bio-chemical analysis for basic radicals reveals that Chittramutti kudineer Chooranam contains Potassium, and Iron.

Test for Acidic radicals

S.No	Procedures	Chitra Mutti Kudineer Chooranam
1.	Test for Sulphate	-
2.	Test for Chloride	+
3.	Test for Phosphate	+
4.	Test for Flouride & Oxalate	-
5.	Test for Nitrate	_

Inferance:

Bio-chemical analysis for Acid radicals reveals that Chittramutti kudineer Chooranam contains chloride, phosphate.

Test for Acidic radicals

S.no	Procedures	Chittra mutti kudineer Chooranam
1.	Test for Starch	-
2.	Test for Reducing sugar	-
3.	Test for Alkaloids	+
4.	Test for Amino acids	_
5.	Test for Tannic acids	+
6.	Test for type of compounds	No Change

Inference

Bio-chemical analysis for acid radicals reveals that Chittra mutti Chooranam contains Chloride, phosphate, Alkaloids, Tannic acids

TOXICITY STUDY

RESULTS OF CHITTRA MUTTI KUDINEER DOSE FINDING EXPERIMENT AND ITS BEHAVIOURAL SIGNS OF TOXICITY

No	Dose ml/kg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Control	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2.	2ml	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

1.Alertness 2.Aggressiveness 3.pilo erection 4.Grooming 5.Gripping 6.Touch Response 7.Motor Activity 8. Tremors 9.Convulsions 10.Muscle Spasm 11.Catatonia 12.Muscle relaxant 13.Hypnosis 14.Analgesia 15.Lacrimation 16.Exophthalmos 17.Diarrhoea 18.Writhing 19. Respiration 20.Mortality

+ Presence of Activity

- Absence of Activity

2ml- 2.7ml in the consentrated state

All the data were summarized in the form of table revealed no abnormal signs and behavioural changes in rats at the dose of 2 ml/kg body weight administered orally.

Acute Toxicity study

In acute toxicity study, the test drug at Chittra mutti Kudineer for single dose (2ml/kg b.wt) was administered.

There was no mortality or signs of toxicity observed after dosing Chittra mutti Kudineer 2ml/kg body weight during the study period of 14 days. This indicate that the LD50 of Chittra mutti Kudineer is more then 2ml/kg b.wt.

There was no changes in skin and fur, eyes and mucous membranes of all animals. The eating, drinking habit, sleep pattern, locomotion were normal in all animals and no changes in body weight as compared to control group.

At the end of the 14 th day necropsy was done and there was no abnormality seen in test groups as compared to control group during the examination.

CLINICAL OBSERVATIONS AND RESULTS

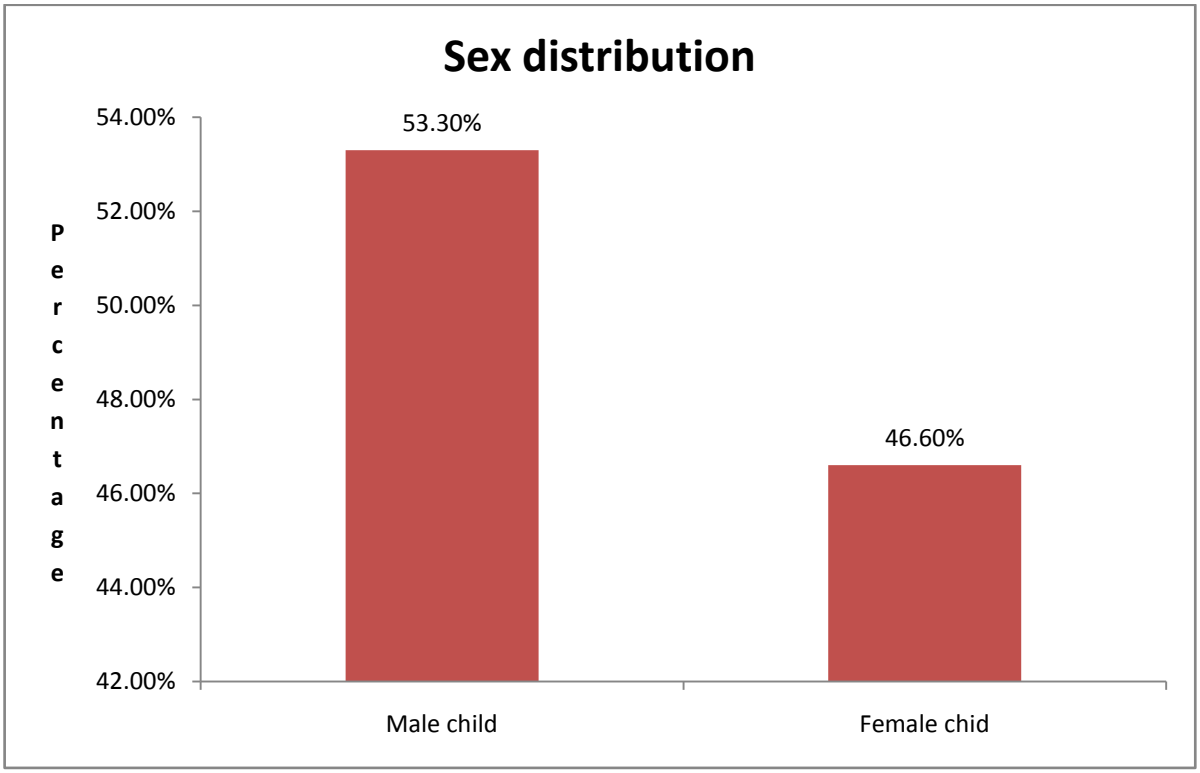
Results of the study were observed with respect to the following criteria

1. Sex Distribution
2. Age Distribution
3. Socio-Economical Status
4. Diet
5. Thinai
6. Paruva kaalam
8. Gunam
9. Body Constitution
10. Naadi
11. Distribution of Vali
12. Distribution of Azhal
13. Distribution of Iyam
14. Envagai thervugal
15. Neikkuri
16. Udhal thaathukkal
17. Kanmenthiriyam
18. Cranial Nerve Examination
19. Classification of paresis based on the affected limb
20. Bulk of the Muscle
21. Muscle tone
22. Muscle power
    - I. Grade of the upper limb power
    - II. Grade of the lower limb power
23. Reflex
    - I Superficial reflex
    - II. Deep tendon reflex
        - Before treatment
        - After treatment
24. Assessment scales Asworth and modified Asworth scale
25. Result assessment by modified Asworth scale before and after treatment

CLINICAL OBSERVATION AND RESULT

1. SEX DISTRIBUTION :

S. No	Sex	No. Of cases	Percentage
1.	Male child	16	53.3%
2.	Female child	14	46.6%

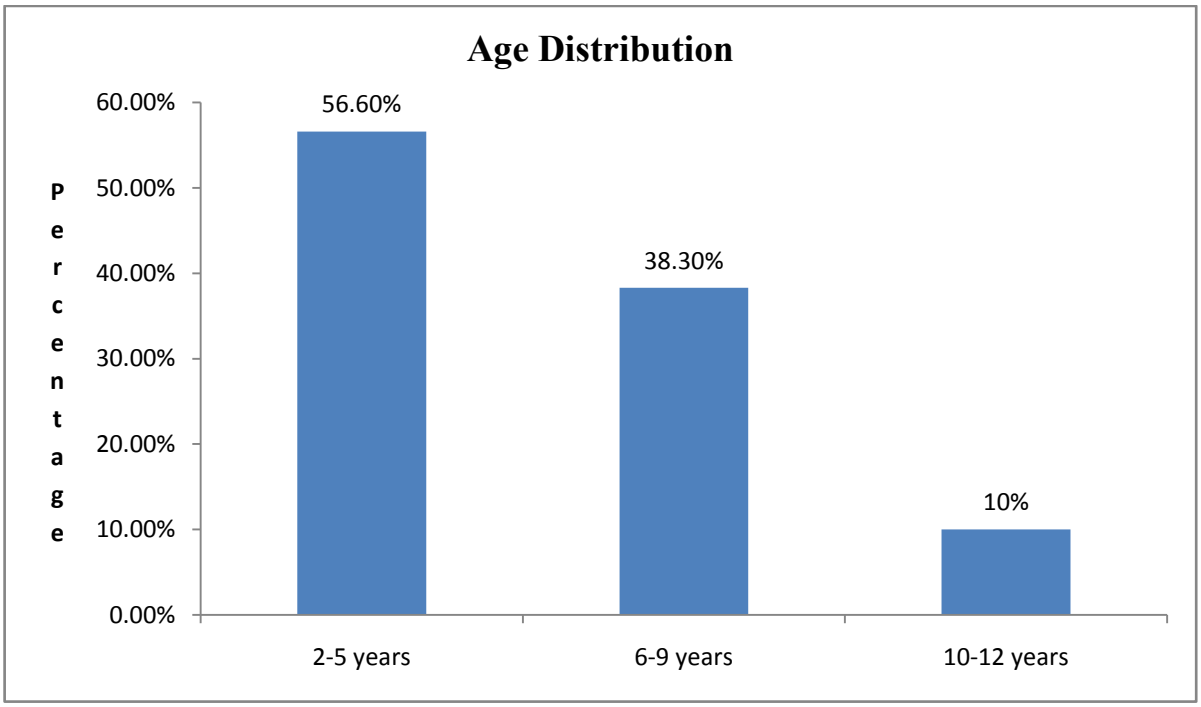


Observation :

From this study, the affected gender of the disease was found to be high in male gender. Among 30 children 53.3% males and 46.6%females was affected .

2. AGE DISTRIBUTION:

S. No	Age	No of cases	Percentage
1.	2-5Years	17	56.6%
2.	6-9Years	10	38.3%
3.	10-12Years	3	10%

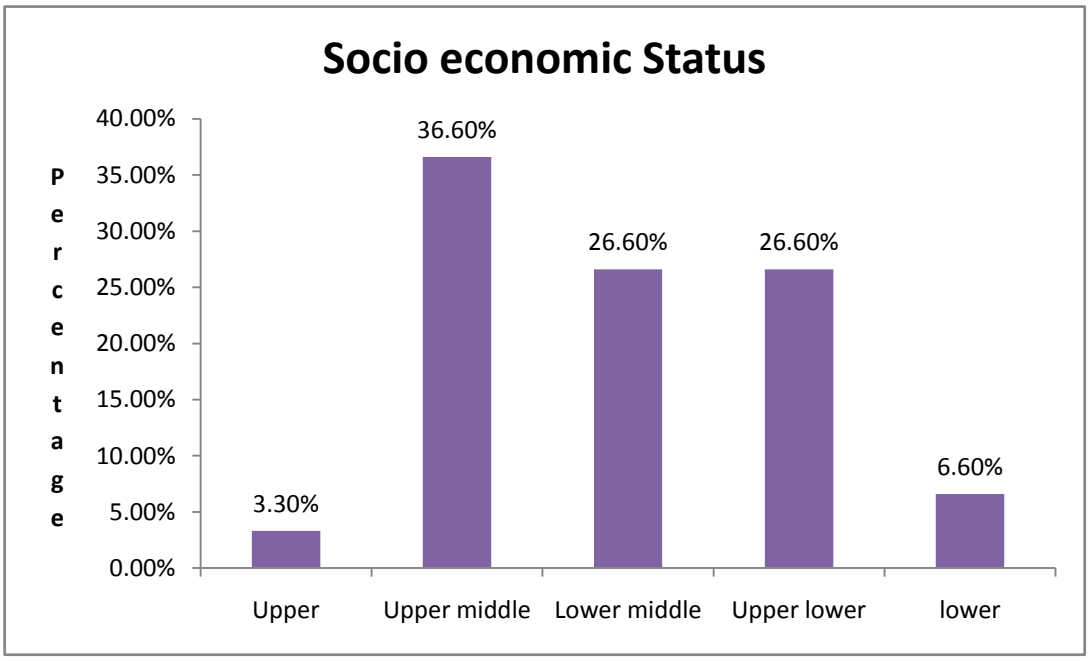


Observation:

In this study, 56.6 % of children came under the age group between 2-5 years, 38.3% of children were under the age of 6-9 years, 10 % of children were between 10-12 years.

3. SOCIO ECONOMIC STATE:

S. No	Socio economic state	No. of cases	Percentage
1.	Upper	1	3.3%
2.	Upper middle	11	36.6%
3.	Lower middle	8	26.6%
4.	Upper lower	8	26.6%
5.	Lower	2	6.6%

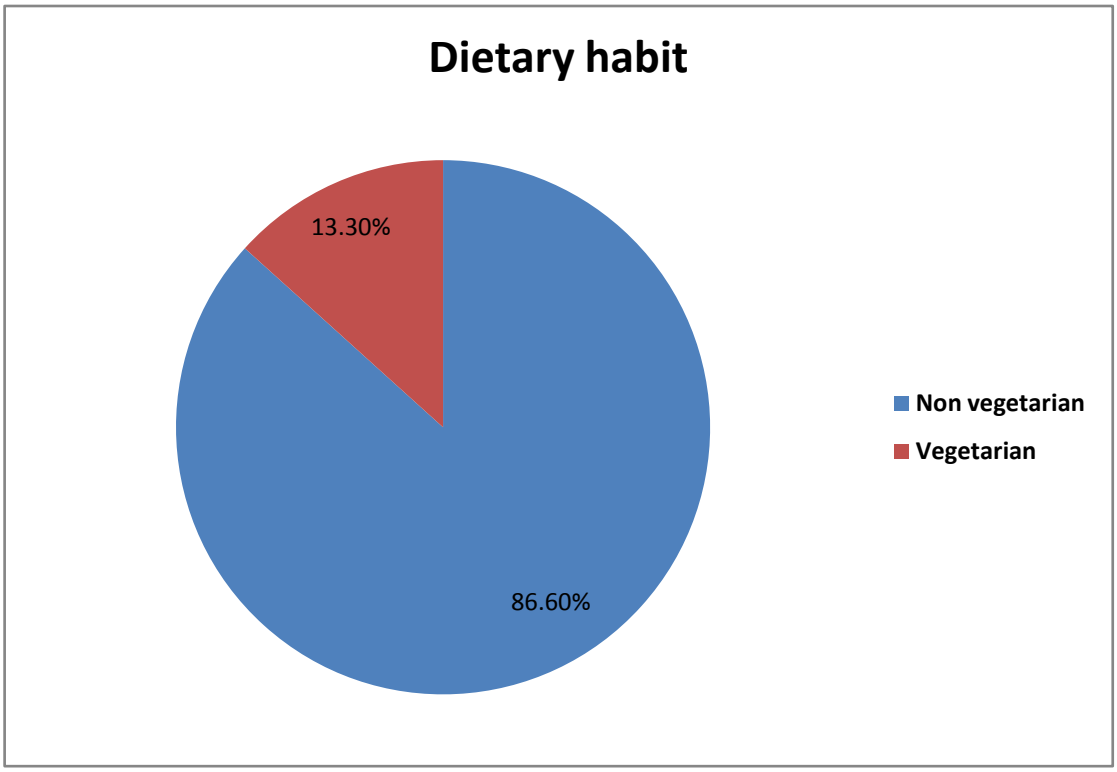


Observation:

In this study, based on the socio economic state, 36.6% come under upper middle class , 26.6% were lower middle and upper middle level income group, 6.6% were from lower level income group and 3.3% were from upper level income group.

4.DIET:

S. No	Dietary Habit	No of Cases	Percentage
1.	Non vegetarian	26	86.6%
2.	Vegetarian	4	13.3%



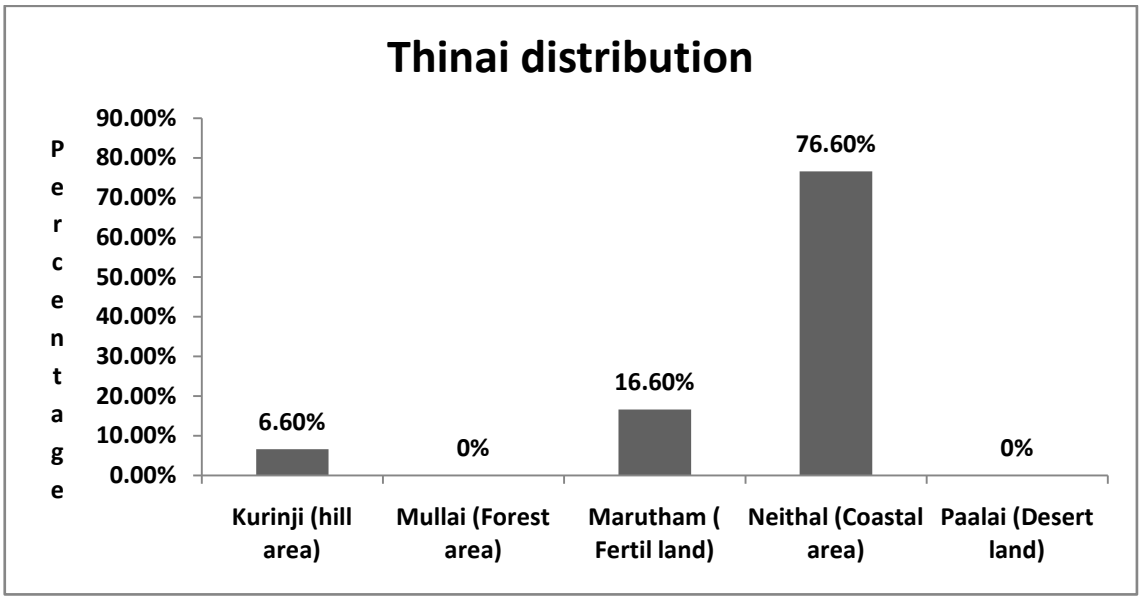
]

Observation :

Among 30 children, 86.6% of patients non vegetarian and 13.3% of patients were vegetarian.

5. THINAI:

S. No	Thinai	No of cases	Percentage
1.	Kuruinji (Hill area)	2	6.6%
2.	Mullai (Forest area)	-	-
3.	Marutham (Fertil land)	5	16.6%
4.	Neithal (Coastal area)	23	76.6%
5.	Paalai (Desart land)	-	-

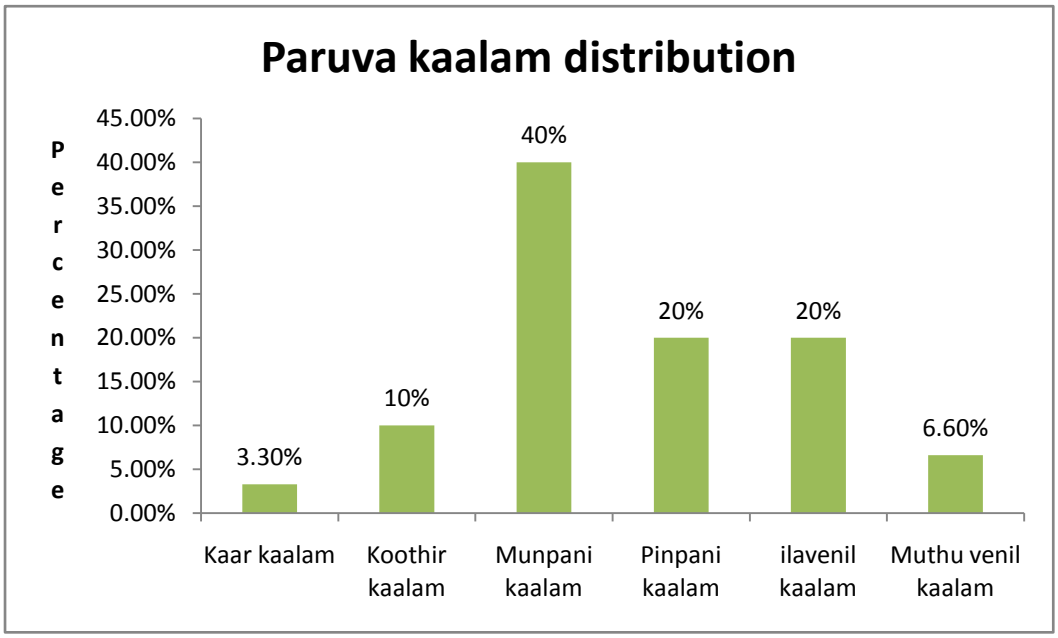


Observation:

Among the 30 children, 76.6% of children from Neithal thinai, 16.6% of children from Marutham and 6.6% from Kuruinji thinai.

7. PARUVA KAALAM :

S. No	Kaalam	No of cases	Percentage
1.	Kaarkaalam	1	3.3%
2	Koothirkaalam	3	10%
3	Munpanikaalam	12	40%
4.	Pinpanikaalam	6	20%
5.	Illavenilkaalam	6	20%%
6.	Muthuvenilkaalam	2	6.6%

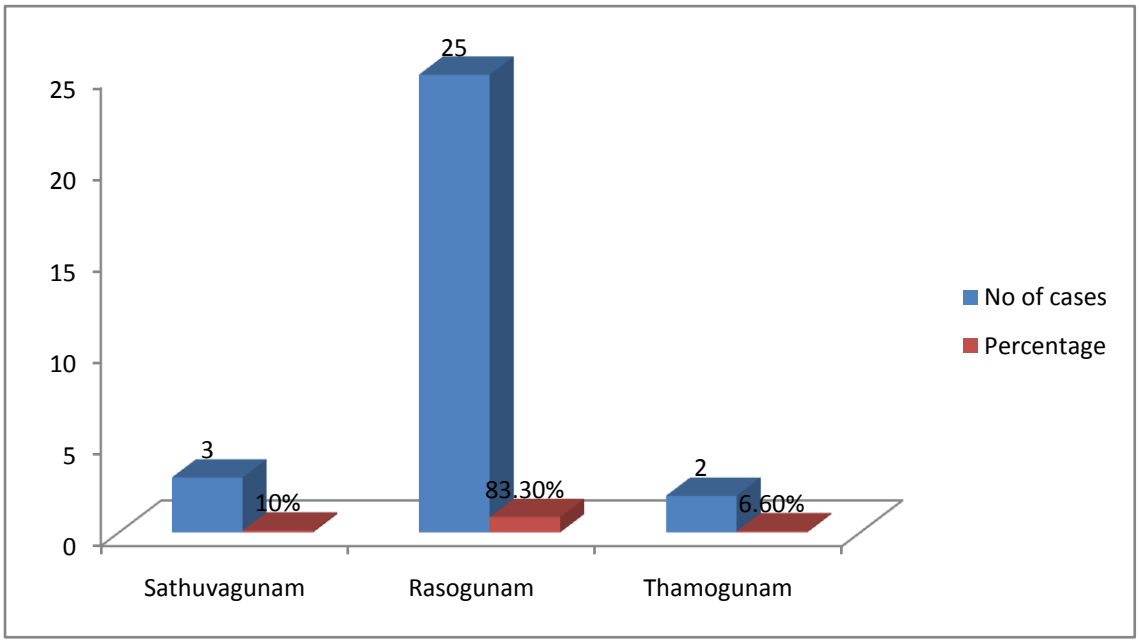


Observation:

Out of 30 children, 40% of the children were treated in Munpani kaalam, 20% of them in Pinpani kaalam, 20% in illavenir kalam, 6.6% children were treat in Muthuvenil kalam and the remaining 3.3% in Kaarkalam.

8.GUNAM:

S.No	Gunam	No of cases	Percentage
1	Sathuvagunam	3	10%
2	Rasogunam	25	83.3%
3	Thamogunam	2	6.6%

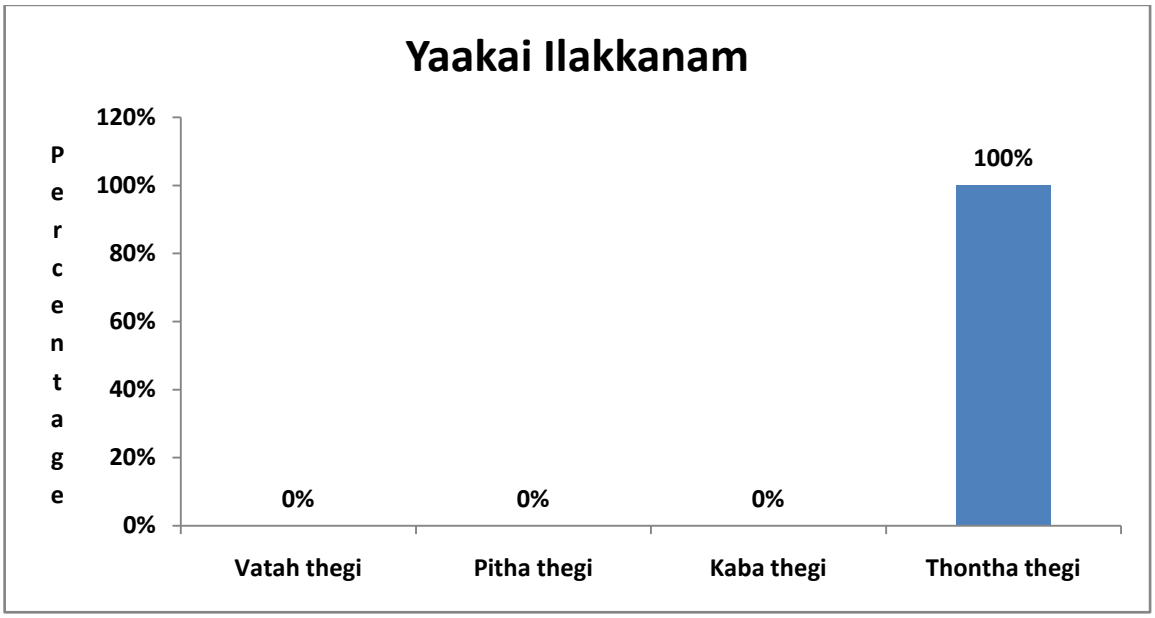


Observation:

In 30 children, 83.3 cases cunder Rasogunam, 10% under Sathuva Gunam, 6.6% under Thamogunam.

9.YAKKAI ILAKKANAM (BODY CONSTITITUTION):

S.No	Yakkaiilakkanam	No of cases	Percentage
1	Vaathathegi	-	-
2	Pithathegi	-	-
3	Kabathegi	-	-
4	Thonthathegi	30	100%

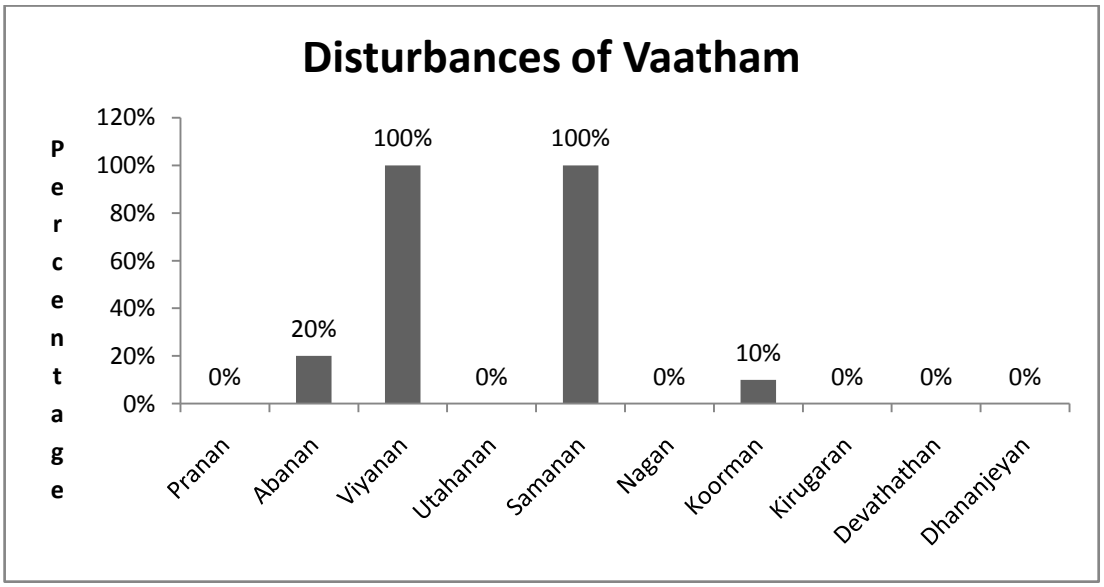


Observation:

Among 30 children, all of them came under thontha thegi.

10. DISTURBANCE OF VAATHAM:

S. No	Vaatham	No of cases	Percentage
1	Pranan	-	-
2	Abanan	6	20%
3	Viyanan	30	100%
4	Uthanan	-	-
5	Samanan	30	100%
6	Nagan	-	-
7	Koorman	3	10%
8	Kirugaran	-	-
9	Devathathan	-	-
10	Dhananjeyan	-	-

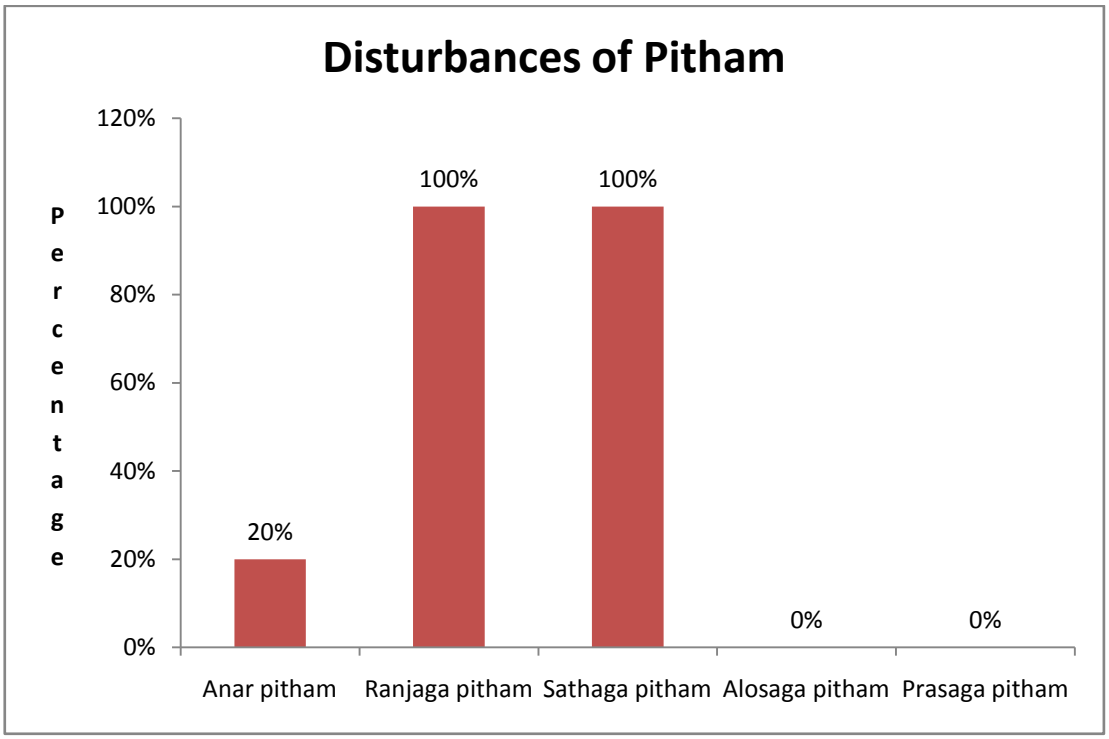


Obervation:

In Vaatham, Viyaanan and Samanan affected in all the 30 children (100%), In 6% children Abaanan affected and in 10% of children koorman was affected.

11. DISTURBANCE OFAZHAL:

S.No	Pitham	No of Cases	Percentage
1	Anarpitham	6	20%
2	Ranjagapitham	30	100%
3	Sathaga pitham	30	100%
4	Alosagapitham	-	-
5	Prasaga pitham	-	-

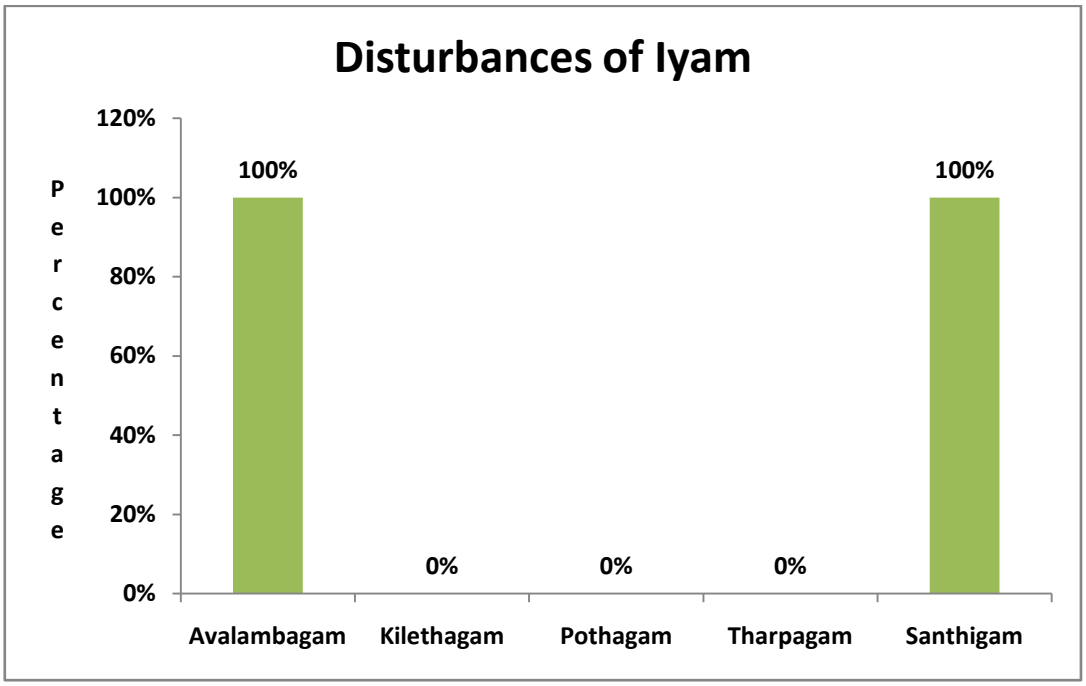


Observation:

In Pitham, Anar pitham was affected in 20% of cases, Ranjagapitham and Saathagam affected in all the 100% of cases.

12. DISTURBANCE OF IYAM:

S.No	Iyam	No of Cases	Percentage
1	Avalambagam	30	100%
2	Kilethagam	-	-
3	Pothagam	-	-
4	Tharpagam	-	
5	Santhigam	30	100%



Observation:

Among the 30 cases, Avalambagam and Santhigam affected in all the 30 cases.

13. ENVAGAI THERVUGAL:

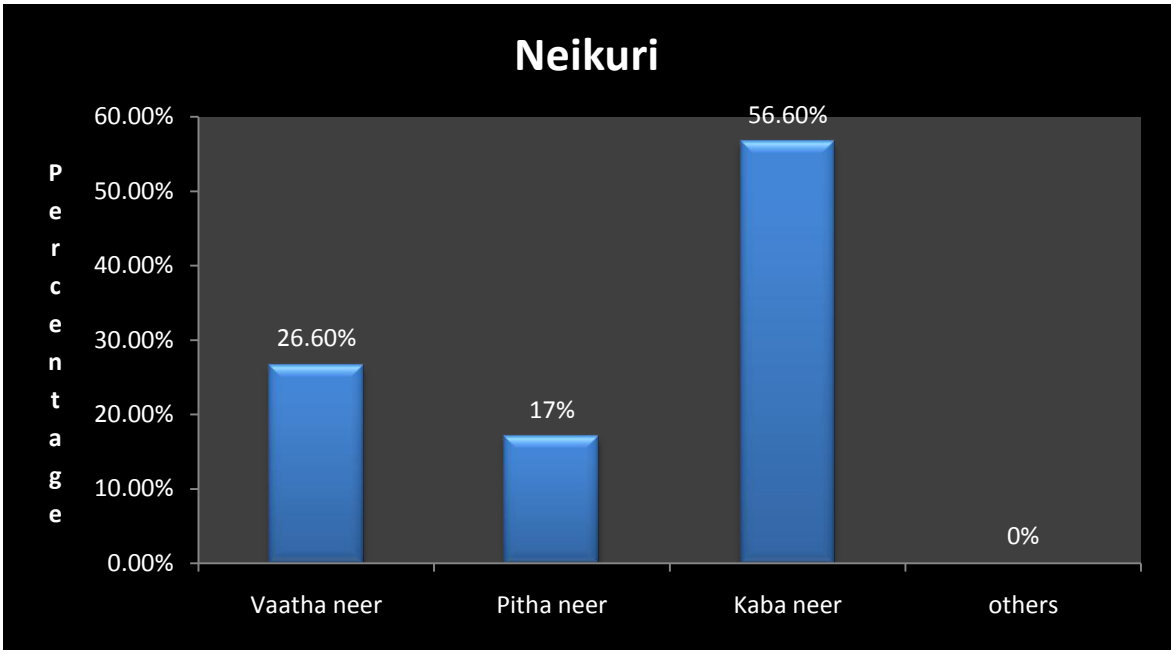
S.No	Envagai thervugal	No of cases	Percentage
1	Naadi		
	➢ Vathapitham	12	40%
	➢ Pithavatham	10	33.3%
	➢ Kabavatham	4	13.3%
	➢ Kabapitham	6	20%
2	Sparisam	30	100%
3	Naa	-	-
4	Niram	-	-
5	Mozhi	2	6.6%
6	Vizhi	2	6.6%
7	Malam	6	20%
8	Moothiram	-	-

Observation:

In Envagaithervugal, Sparisam was affected in all the 30 cases. The Naadi in Baala Vaatham was recorede as 40% with Vathapitham, 10% pithavatham, 4% Kaba Vatham, 6% which Kabapitham.

14. NEIKKURI:

S.No	Neikuri	No of cases	Percentage
1	Vaathaneer(Aravena neendathu)	8	26.6%
2	Pithaneer (Azhipol paraviyathu)	5	17%
3	Kaba Neer (Muthothu nindrathU)	17	56.6%
4	Others	-	-

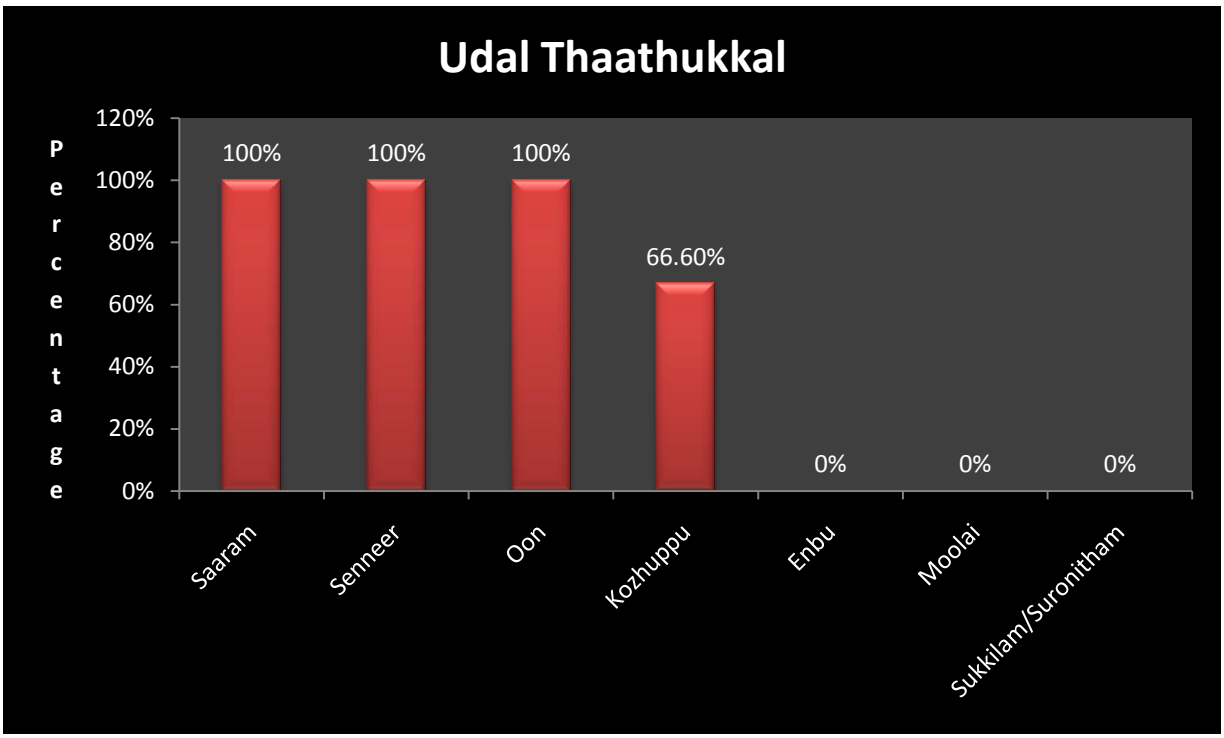


Obsevation:

Among 30 cases, in 8 cases(26.6%) was found to be with Vaatha neer, 5 cases (17%) with pita neer, and17cases (56.6%) With kaba neer.

15. UDAL THAATHUKKAL:

S.No	Udalthaathukkal	No of cases	Percentage
1	Saaram	30	100%
2	Senneer	30	100%
3	Oon	30	100%
4	Kozhuppu	20	66.6%
5	Enbu	-	-
6	Moolai	-	-
7	Sukkilam\ suronitham	-	-

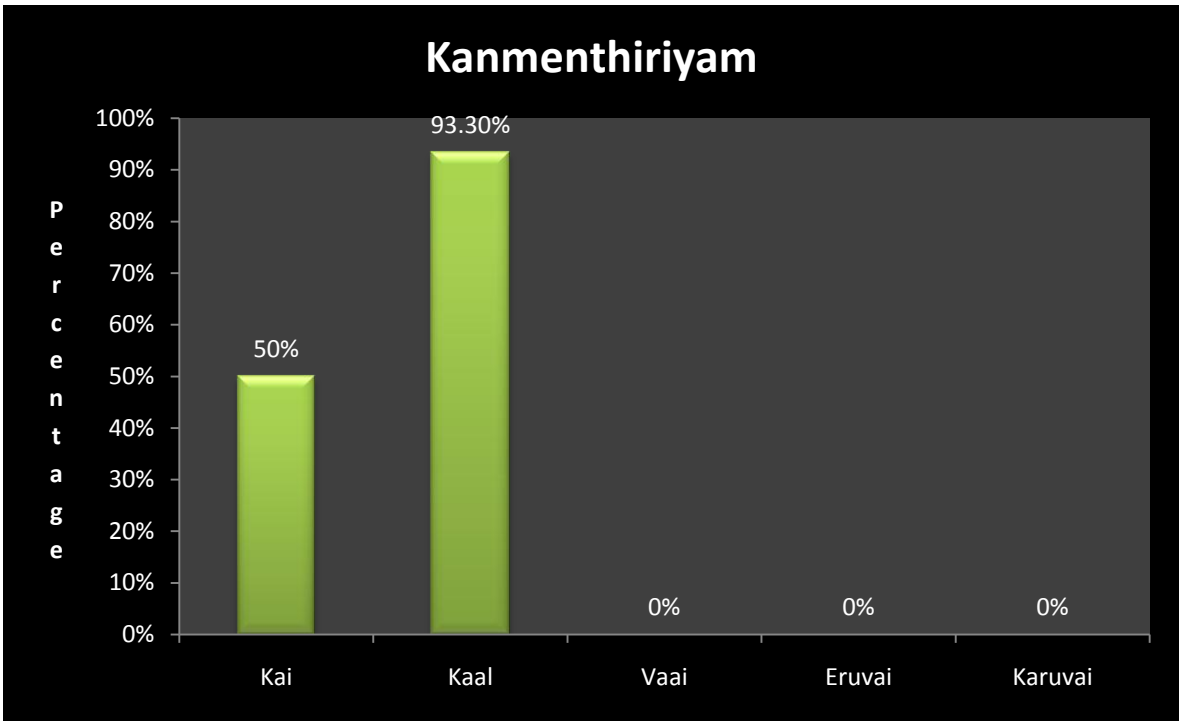


Observation :

In this study, Saaram, Senneer and Oon were affected in all the 30 cases (100%). Kozhuppu was affected in 20 cases (66.6%)

16. KANMENTHIRIYAM:

S.No	Kanmenthiriyam	No of cases	Percentage
1	Kai	15	50%
2	Kaal	28	93.3%
3	Vaai	-	-
4	Eruvai	-	-
5	Karuvai	-	-

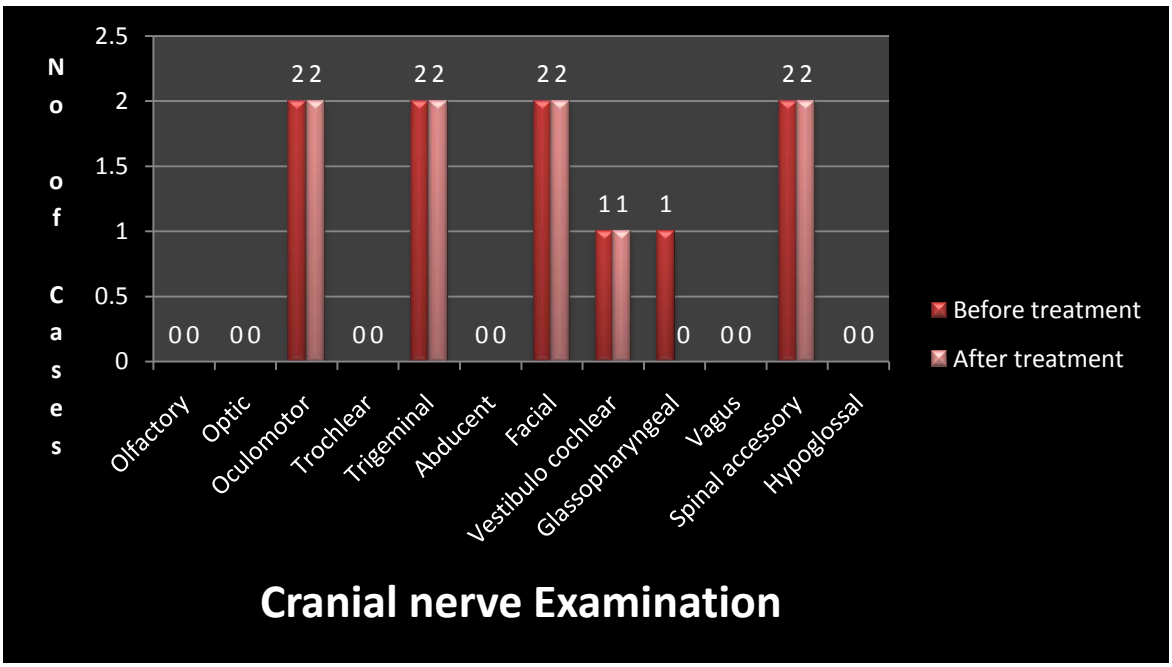


Observation:

In Kanmendrium, Kai was affected in 15 cases (50%) and Kaal was affected in 28 cases (93.3%).

17.CRANIAL NERVE EXAMINATION:

S.No	Cranial Nerve	Before treatment no of cases	After treatment no of cases
1.	Olfactory	-	-
2.	Optic	-	-
3.	Oculomotor	2	2
4.	Trochelar	-	-
5.	Trigeminal	2	2
6.	Abducent	-	-
7.	Facial	2	2
8.	Vestibulo cochlear	1	1
9.	Glassopharyngel	1	-
10.	Vagus	-	-
11.	Spinal accessory	2	2
12.	Hypoglossal	-	-

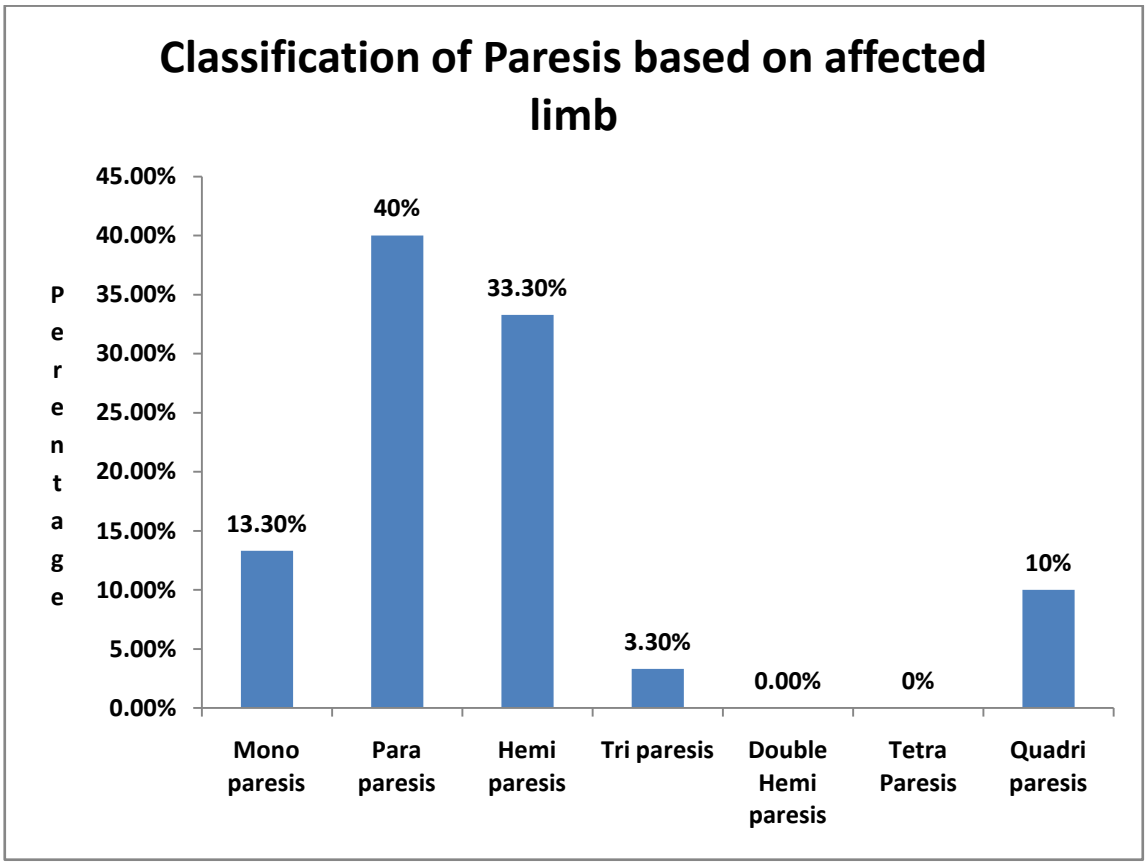


Observation:

During cranial nerve examination 2 children showed abnormality in optic, trigeminal, facial and spinal accessory nerves and one child shows abnormality in glossopharyngeal nerve and Vestibulo cocclear nerve.

18. CLASSIFICATION OF PARESIS BASED ON AFFECTED LIMB:

S. No	Paresis	No of cases	Percentage
1	Mono paresis	4	13.3%
2	Para paresis	12	40%
3	Hemi paresis	10	33.3%
4	Tri pareisis	1	3.3%
5	Double hemiparesis	-	-
6	Tetra paresis	-	-
7	Quadri paresis	3	10%



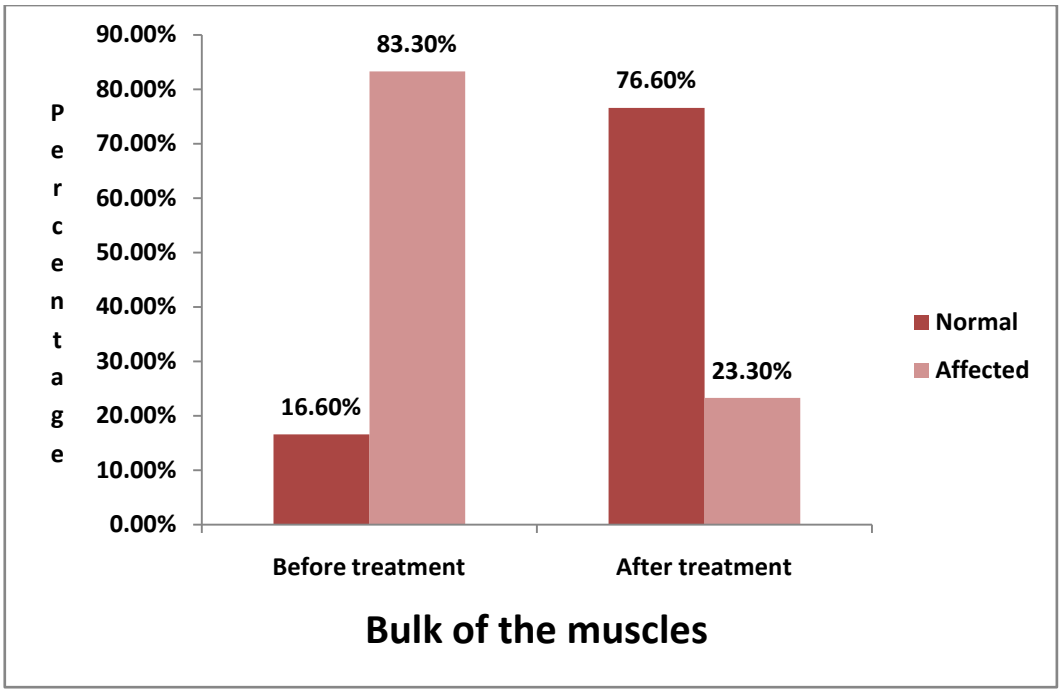
Observation:

Among 30 cases 40% of the cases were recorded as para paresis, 33.3% as Hemi paresis, 13.3% as Mono paresis 10% as Quadri paresis and remaining 3.3% as Triparesis.

19. BULK OF THE MUSCLE:

S.No	O.P/I.P No	Before treatment				After treatment			
		Upperlimb		Lower limb		Upper limb		Lower limb	
		Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt
1.	J35430	N	N	A	A	N	N	N	N
2.	J12304	A	A	A	A	N	N	N	N
3.	J32268	N	N	N	N	N	N	N	N
4.	J73325/0153-17	A	A	A	A	A	A	A	A
5.	J73308/0197-17	A	N	A	N	N	N	N	N
6.	J77120/033-18	N	N	A	A	N	N	N	N
7.	J73621/ 0230-17	A	N	A	N	A	N	A	N
8.	I75399	N	N	N	N	N	N	N	N
9.	J83360	N	N	N	N	N	N	N	N
10.	J42382/0244-17	N	A	N	A	N	N	N	N
11.	J94318/0184-18	N	N	A	N	N	N	N	N
12.	J78239	N	N	N	N	N	N	N	N
13.	J91230	N	N	A	A	N	N	N	N
14.	J89415	N	N	A	A	N	N	A	A
15.	J57667/0290-18	N	N	A	A	N	N	N	N
16.	F84077/0606-18	N	A	N	A	N	A	N	A
17.	J97621	N	N	N	N	N	N	N	N
18.	J97076	N	N	N	N	N	N	N	N
19	K03676/0431-18	A	N	A	N	N	N	N	N
20.	K10779/0422-18	N	N	N	N	N	N	N	N
21.	K10780/0423-18	N	N	N	N	N	N	N	N
22.	K12603	A	N	A	A	N	N	N	N
23.	E89125	A	N	N	N	N	N	N	N
24.	K18069	N	N	A	A	N	N	N	N
25.	I69163	A	N	A	N	N	N	N	N
26.	J45333	A	A	A	A	A	A	A	A
27.	J88827	N	A	N	A	N	N	N	N
28.	K20331/0562-18	A	N	A	N	N	N	N	N
29.	K18463/0512-18	N	A	N	A	N	A	N	A
30.	J85220/0614-18	N	A	N	A	N	A	N	A

Bulk of the Muscle	Before treatment		After treatment	
	No. of cases	percentage	No of cases	Percentage
Normal	5	16.6%	23	76.6%
Affected	25	83.3%	7	23.3%



Observation:

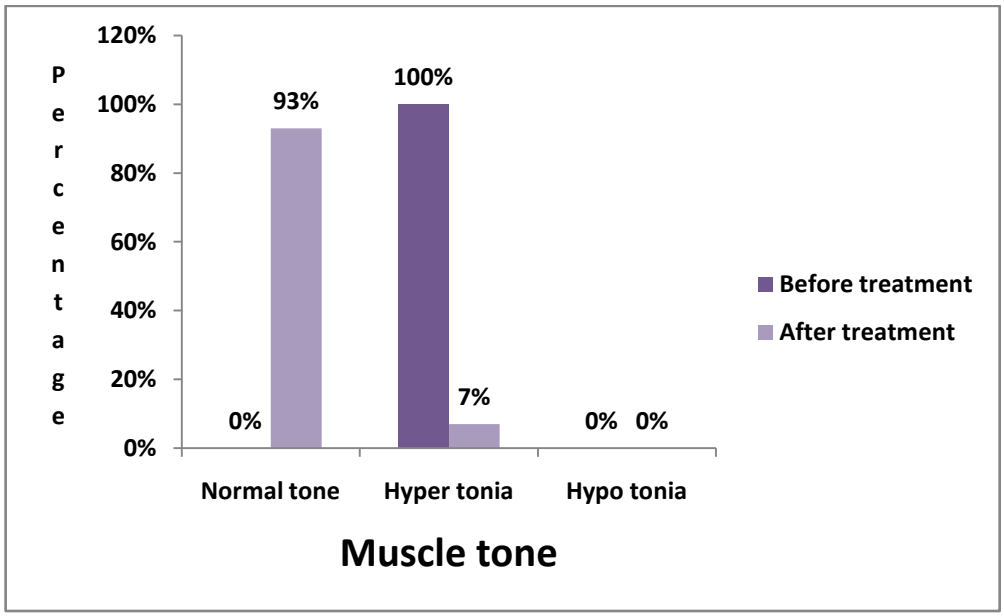
Among the 30 children, 5 (16.6%)children had a normal bulk of the ,muscle before the onset of treatment but they had difficulty in using the limbs and the remaining 25 (83.3%) were affected in the muscle bulk. After the course of treatment the 83.3% affected children's muscle bulk was gradually improved. 7 cases had no improvement in their muscle bulk.

20.MUSCLE TONE:

S. No	Muscle tone	Before treatment		After treatment	
		No	Percentage	No	Percentage
1.	Normal tone	-	-	28	93%
2.	Hyper tonia	30	100%	2	7%
3.	Hypo tonia	-	-	-	-

Observation:

All the children were found have hyper tonia and after treatement the spasticity was reduced in 93% (28) of the children, remaing 7% (2) children spasticity was static.



Obaservation:

30 hypertonic children were selected for the study, among them 28 children's muscle tone was improved to the normal tonic stage during the treatment period and remaining 7 children had no improvement in their muscle tone.

21. MUSCLE POWER:

S.No	O.P/I.PNo	Before treatment				After treatment			
		Upper limb		Lower limb		Upper limb		Lower limb	
		Pro	Dis	pro	dis	pro	Dis	Prox	Dis
1.	J35430	G5	G5	G2	G2	G5	G5	G4	G4
2.	J12304	G2	G2	G2	G2	G4	G4	G4	G4
3.	J32268	G2	G3	G5	G5	G4	G5	G5	G5
4.	J73325/0153-17	G1	G1	G1	G1	G2	G2	G2	G2
5.	J73308/0197-17	G2	G2	G3	G2	G5	G5	G4	G5
6.	J77120/033-18	G5	G5	G3	G2	G5	G5	G5	G5
7.	J73621/ 0230-17	G3	G3	G3	G3	G5	G5	G5	G5
8.	I75399	G5	G5	G3	G3	G5	G5	G5	G5
9.	J83360	G5	G5	G3	G3	G5	G5	G5	G5
10.	J42382/0244-17	G2	G1	G2	G2	G4	G4	G4	G4
11.	J94318/0184-18	G5	G5	G2	G2	G5	G5	G4	G4
12.	J78239	G5	G5	G3	G3	G5	G5	G5	G5
13.	J91230	G5	G5	G2	G3	G5	G5	G4	G4
14.	J89415	G5	G5	G3	G3	G5	G5	G5	G5
15.	J57667/0290-18	G5	G5	G1	G1	G5	G5	G4	G4
16.	F84077/0606/18	G2	G2	G2	G2	G4	G4	G4	G4
17.	J97621	G5	G5	G3	G3	G5	G5	G5	G5
18.	J97076	G3	G3	G5	G5	G4	G4	G5	G5
19.	K03676/0431-18	G2	G2	G2	G2	G4	G4	G4	G4
20.	K10779/0422-18	G5	G5	G3	G3	G5	G5	G4	G4
21.	K10780/0423-18	G5	G5	G3	G3	G5	G5	G4	G4
22.	K12603	G3	G3	G2	G2	G5	G5	G4	G4
23.	E89125	G3	G2	G5	G5	G4	G4	G5	G5
24.	K18069	G5	G5	G3	G2	G5	G5	G5	G5
25.	I69163	G2	G2	G1	G1	G4	G4	G4	G4
26.	J45333	G2	G2	G2	G2	G2	G2	G2	G2
27.	J88827	G3	G3	G3	G3	G5	G5	G5	G5
28.	K20331/0562 -18	G3	G3	G3	G3	G5	G5	G5	G5
29.	K18463/0512- 18	G2	G2	G2	G2	G3	G3	G3	G3
30.	J85220/0614-18	G2	G2	G2	G3	G3	G3	G3	G3

Grade 0 – Complete paralysis, total paralysis (no power)

Grade 1 – Visible or palpable flicker or trace of contracture, not enough to move a joint

Grade 2 – Able to move eliminating the gravity

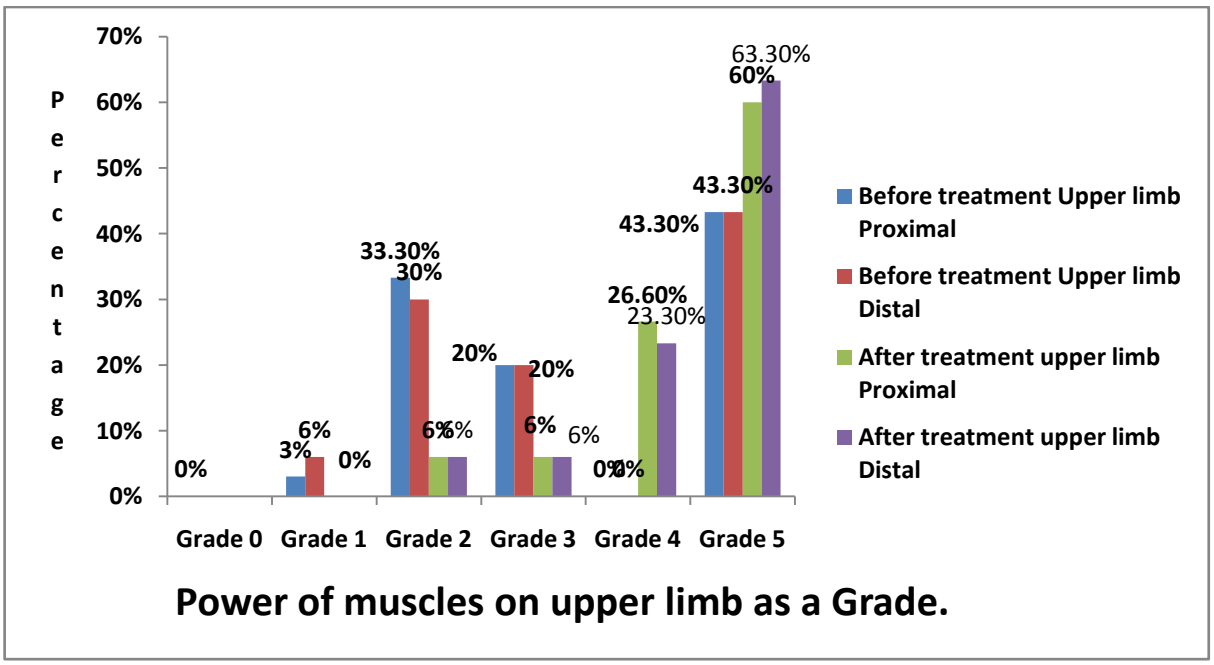
Grade 3 – Able to move against gravity but not against resistance

Grade 4 – Able to move against partial resistance

Grade 5 – Normal power

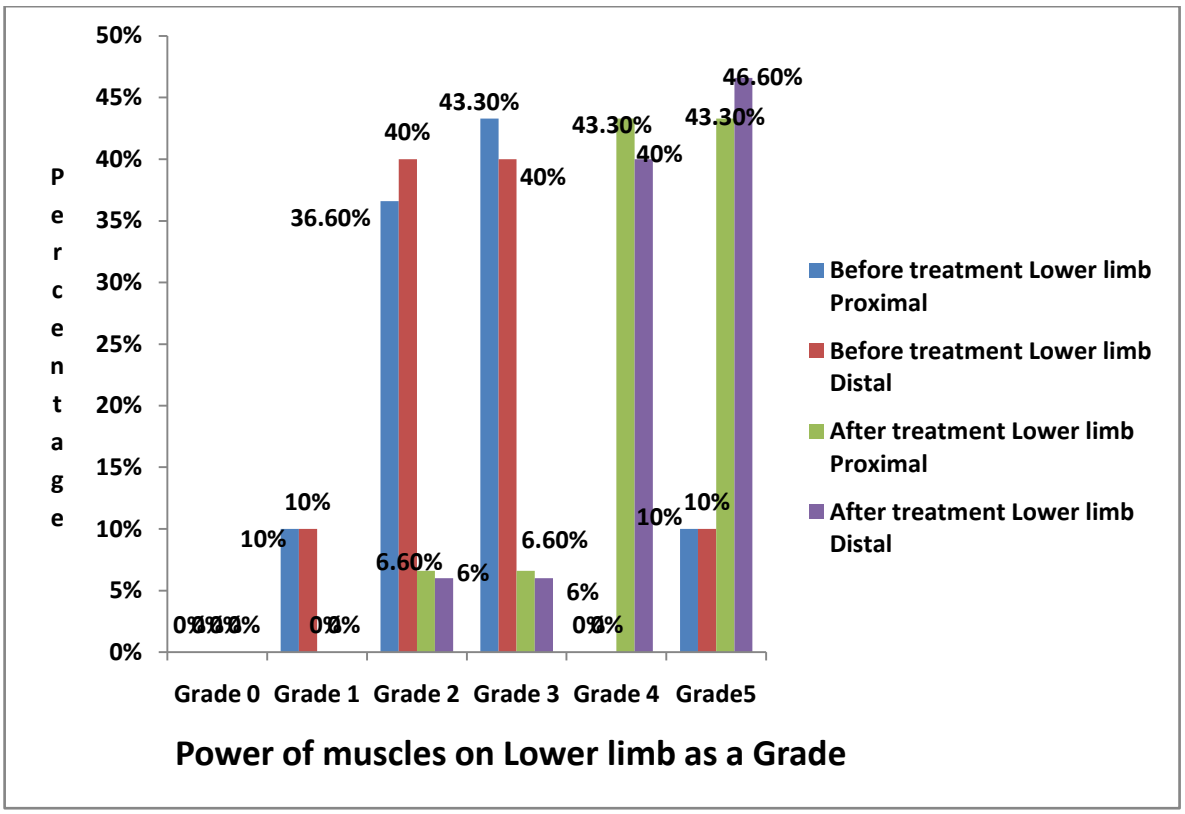
21. I.GRADING OF UPPER LIMB POWER:

S.No	Grading	Before treatment				After treatment			
		Upper limb				Upper limb			
		Proximal		Distal		Proximal		Distal	
		No	%	No	%	no	%	No	%
1.	Grade 0	-	-	-	-	-	-	-	-
2.	Grade 1	1	3%	2	6%	-	-	-	-
3.	Grade 2	10	33.3%	9	30%	2	6%	2	6%
4.	Grade 3	6	20%	6	20%	2	6%	2	6%
5.	Grade 4	-	-	-	-	8	26.6	7	23.3%
6.	Grade 5	13	43.3%	13	43.3%	18	60%	19	63.3%



21. II.GRADING OF LOWER LIMB POWER :

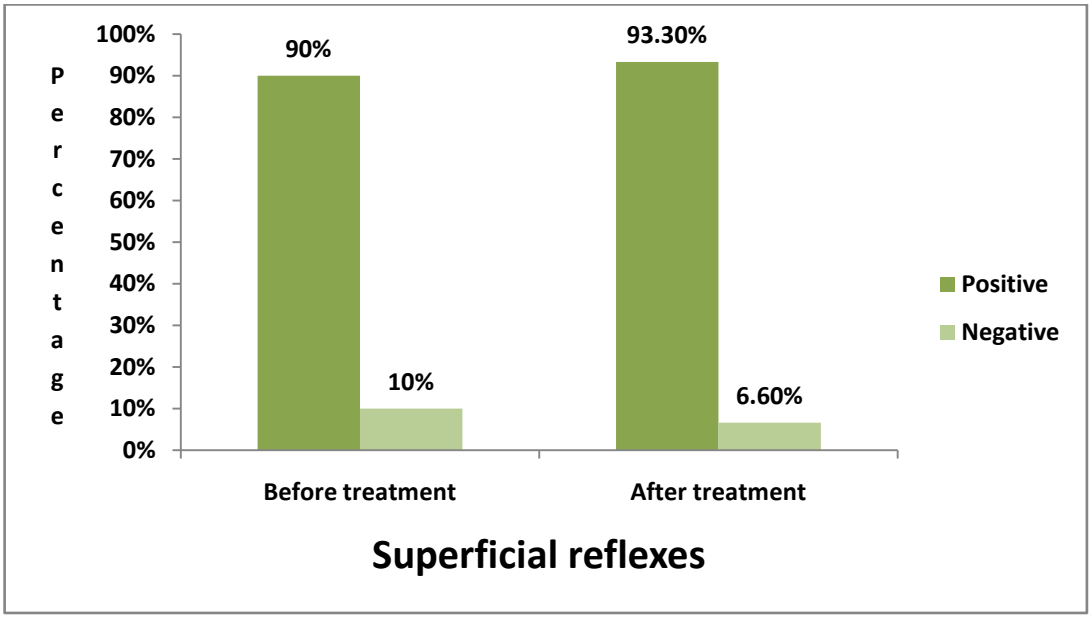
S.No	Grading	Before treatment				After treatment			
		Lower limb				Lower limb			
		Proximal		Distal		Proximal		Distal	
		No	%	no	%	no	%	No	%
1.	Grade 0	-	-	-	-	-	-	-	-
2.	Grade 1	3	10%	3	10%	-	-	-	-
3.	Grade 2	11	36.6%%	12	40%	2	6.6%	2	6%
4.	Grade 3	13	43.3%	12	40%	2	6.6%	2	6%
5.	Grade 4	-	-	-	-	13	43.3%	12	40%
6.	Grade 5	3	10%	3	10%	13	43.3%	14	46.6%



22. SUPERFICIAL REFLEX:

S. No	Op.I.P No	Before treatment	After treatment
1.	J35430	+	+
2.	J12304	-	+
3.	J32268	+	+
4.	J73325/0153-17	-	-
5.	J73308/0197-17	+	+
6.	J77120/033-18	+	+
7.	J73621/ 0230-17	+	+
8.	I75399	+	+
9.	J83360	+	+
10.	J42382/0244-17	+	+
11.	J94318/0184-18	+	+
12.	J78239	+	+
13.	J91230	+	+
14.	J89415	+	+
15.	J57667/0290-18	+	+
16.	F84077/0606/18	+	+
17.	J97621	+	+
18.	J97076	+	+
19.	K03676/0431-18	+	+
20.	K10779/0422-18	+	+
21.	K10780/0423-18	+	+
22.	K12603	+	+
23.	E89125	+	+
24.	K18069	+	+
25.	I69163	+	+
26.	J45333	-	-
27.	J88827	+	+
28.	K20331/ 0562 -18	+	+
29.	K18463/0512 -18	+	+
30.	J85220/0614-18	+	+

S. No	Superficial reflex	Before treatment		After treatment	
		No	Percentage	No	Percentage
1.	Postivie superficial reflex	27	90%	28	93.3%
2.	Absent of superficial reflex	3	10%	2	6.6%



22.I.DEEP TENDON REFLEX BEFORE TREATMNT:

S.No	O.P./I.P.No	Before treatment										
		Jaw	Bi		Tri		Sup		Knee		Angle	
			R	L	R	L	R	L	R	L	R	L
1.	J35430	++	++	++	++	++	++	++	++++	++++	+++	+++
2.	J12304	++	+++	+++	+++	+++	+++	+++	++++	++++	+++	+++
3.	J32268	++	+++	++	+++	++	+++	++	+++	+++	++	++
4.	J73325/0153-17	++	+++	+++	++++	+++	+++	+++	++++	++++	+++	+++
5.	J73308/0197-17	++	+++	++	+++	++	+++	++	++++	+++	+++	++
6.	J77120/033-18	++	++	++	++	++	++	++	++++	++++	+++	+++
7.	J73621/ 0230-17	++	+++	+++	+++	+++	+++	+++	++++	++++	+++	+++
8.	I75399	++	+++	+++	++++	+++	+++	+++	+++	+++	++	++
9.	J83360	++	++	++	++	++	++	++	++++	+++	+++	++
10.	J42382/0244-17	++	++	+++	++	+++	++	+++	+++	++++	++++	++++
11.	J94318/0184-18	++	++	++	++	++	++	++	++++	+++	+++	+++
12.	J78239	++	++	++	++	++	++	++	++++	++++	+++	+++
13.	J91230	++	++	++	++	++	++	++	++++	+++	+++	+++
14.	J89415	++	++	++	++	++	++	++	++++	++++	+++	+++
15.	J57667/0290-18	++	++	++	++	++	++	++	++++	++++	++++	++++
16.	F84077/0606/18	++	++	+++	++	+++	++	+++	+++	++++	++	+++
17.	J97621	++	++	++	++	++	++	++	++++	++++	+++	+++
18.	J97076	++	+++	+++	+++	+++	+++	+++	+++	+++	++	++
19.	K03676/0431-18	++	+++	++	+++	++	+++	++	++++	+++	+++	++
20.	K10779/0422-18	++	++	++	++	++	++	++	++++	++++	++++	++++
21.	K10780/0423-18	++	++	++	++	++	++	++	++++	++++	+++	++++
22.	K12603	++	+++	++	+++	++	+++	++	++++	++++	+++	+++
23.	E89125	++	+++	++	+++	++	+++	++	+++	+++	++	++
24.	K18069	++	++	++	++	++	++	++	++++	++++	+++	+++
25.	I69163	++	++++	++	++++	++	++++	++	++++	+++	++++	++
26.	J45333	++	+++	+++	+++	+++	+++	+++	++++	++++	+++	+++
27.	J88827	++	++	++++	++	++++	++	++++	+++	++++	++++	++++
28.	K20331/ 0561 -18	++	+++	++	+++	++	+++	++	++++	+++	+++	++
29.	K18463/0512 -18	++	++	++++	++	++++	++	++++	+++	++++	++	++++
30.	J85220/0614-18	++	++	++++	++	++++	++	++++	+++	++++	++	++++

22. II.DEEP TENDON REFLEXES BEFORE TREATMEN:

S.No	Grade	Jaw jerk	Biceps		Triceps		Supinator		Knee		Ankle	
			R	L	R	L	R	L	R	L	R	L
1.	Grade 0	-	-	-	-	-	-	-	-	-	-	-
2.	Grade 1	-	-	-	-	-	-	-	-	-	-	-
3.	Grade 2	30	17	19	17	19	17	19	-	-	7	9
4.	Grade 3	-	12	8	10	8	12	8	10	11	18	13
5	Grade 4	-	1	3	3	3	1	3	20	19	5	8

23. I. DEEP TENDON REFLEX AFTER TREATMENT:

S. No	O.P./I.P.No	After treatment										
		Jaw	Bi		Tri		Sup		Knee		Angle	
			R	L	R	L	R	L	R	L	R	L
1.	J35430	++	++	++	++	++	++	++	+++	+++	++	+++
2.	J12304	++	+++	+++	++	+++	+++	+++	++++	++++	+++	+++
3.	J32268	++	+++	++	+++	++	+++	++	+++	+++	++	++
4.	J73325/0153-17	++	+++	+++	+++	+++	+++	+++	++++	++++	+++	+++
5.	J73308/0197-17	++	++	++	++	++	++	++	+++	+++	++	++
6.	J77120/033-18	++	++	++	++	++	++	++	+++	+++	++	++
7.	J73621/ 0230-17	++	+++	++	++	++	+++	++	++++	++++	++	++
8.	I75399	++	++	++	++	++	++	++	+++	+++	++	++
9.	J83360	++	++	++	++	++	++	++	+++	+++	++	++
10.	J42382/0244-17	++	++	++++	++	++++	++	++++	+++	++++	++	++++
11.	J94318/0184-18	++	++	++	++	++	++	++	+++	+++	++	++
12.	J78239	++	++	++	++	++	++	++	+++	+++	++	+++
13.	J91230	++	++	++	++	++	++	++	+++	+++	++	++
14.	J89415	++	++	++	++	++	++	++	+++	+++	++	++
15.	J57667/0290-18	++	++	++	++	++	++	++	+++	+++	+++	+++
16.	F84077/0606/18	++	++	+++	++	+++	++	+++	+++	++++	++	+++
17.	J97621	++	++	++	++	++	++	++	+++	+++	++	++
18.	J97076	++	++	++	++	++	++	++	+++	+++	++	++
19.	K03676/0431-18	++	++	++	++	++	++	++	+++	+++	++	++
20.	K10779/0422-18	++	++	++	++	++	++	++	++++	++++	+++	+++
21.	K10780/0423-18	++	++	++	++	++	++	++	+++	+++	++	++
22.	K12603	++	++	++	++	++	++	++	+++	+++	++	++
23.	E89125	++	++	++	++	++	++	++	+++	+++	++	++
24.	K18069	++	++	++	++	++	++	++	+++	+++	++	++

S. No	O.P./I.P.No	After treatment										
		Jaw	Bi		Tri		Sup		Knee		Angle	
			R	L	R	L	R	L	R	L	R	L
25.	I69163	++	+++	++	+++	++	+++	++	+++	+++	+++	++
26.	J4533	++	+++	+++	+++	+++	+++	+++	++++	++++	+++	+++
27.	J88827	++	++	+++	++	+++	++	+++	+++	+++	+++	+++
28.	K20331/ 0562 – 18	++	++	++	++	++	++	++	+++	+++	++	++
29.	K18463/ 0512 -18	++	++	++++	++	++++	++	++++	+++	++++	++	++++
30.	J85220/0614-18	++	++	++++	++	++++	++	++++	+++	++++	++	++++

23. II.DEEP TENDON REFLEXES AFTER TREATMEN:

S.No	Grade	Jaw jerk	Biceps		Triceps		Supinator		Knee		Ankle	
			R	L	R	L	R	L	R	L	R	L
1.	Grade 0	-	-	-	-	-	-	-	-	-	-	-
2.	Grade 1	-	-	-	-	-	-	-	-	-	-	-
3.	Grade 2	30	24	22	26	22	24	22	-	-	23	18
4.	Grade 3	-	6	5	4	5	6	5	25	21	7	9
5	Grade 4	-	-	3	-	3	-	3	5	9	-	3

Grade 0 – Absent (-)

Grade 1 – Sluggish, obtainable with reinforcement (+)

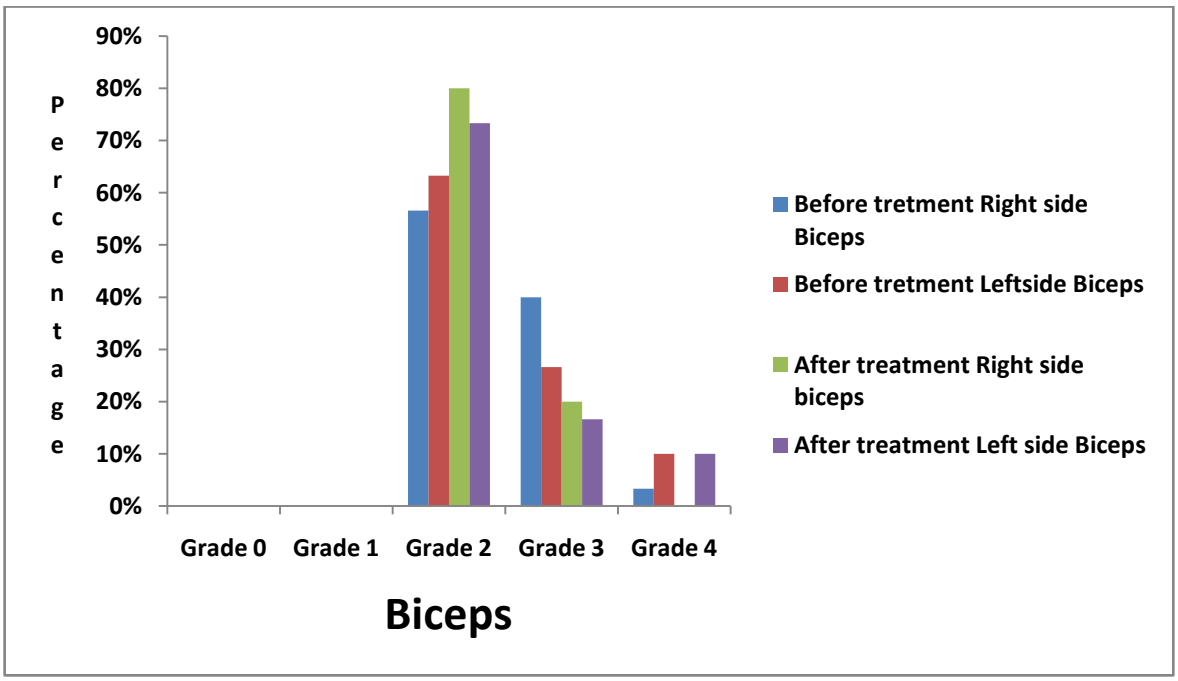
Grade 2 – Readily electable, normal (like normal ankle jerk) (++)

Grade 3 – Brisk/increased (like normal knee jerk (+++)

Grade 4 – Exaggerated/associated with clonus (sustained/ill-substained) (++++)

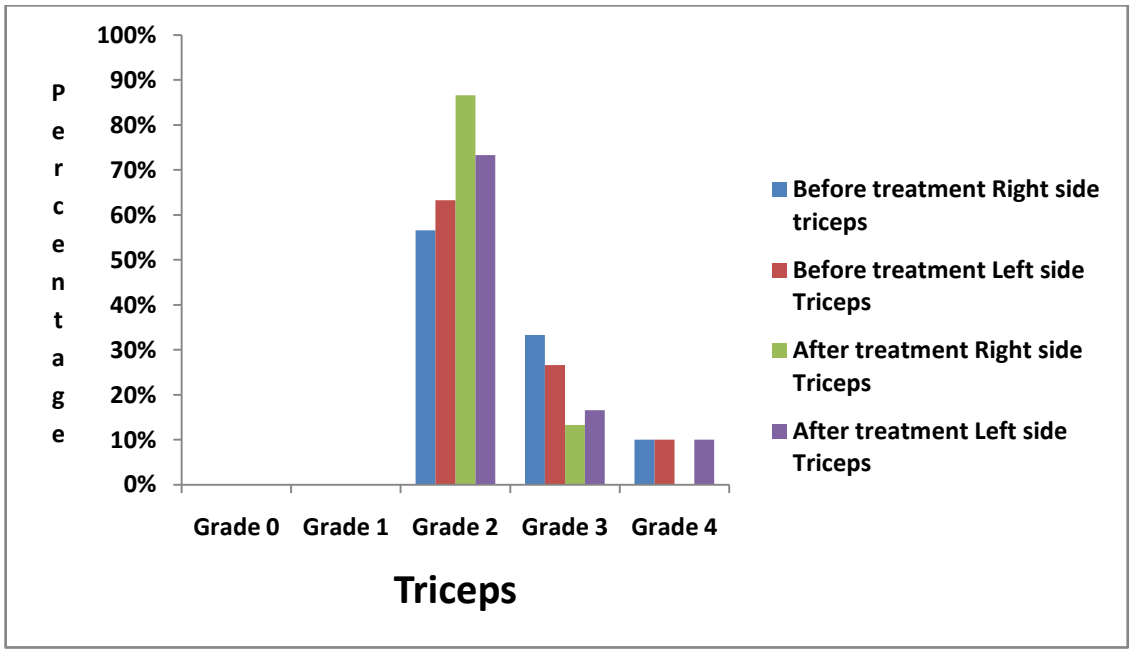
BICEPS:

Grade	Before treatment				After treatment			
	Right		Left		Right		Left	
	No of cases	Percent	No of cases	Percent	No of cases	Percent	No of cases	Percent
Grade 0	-	-	-	-	-	-	-	-
Grade 1	-	-	-	-	-	-	-	-
Grade2	17	56.6%	19	63.3%	24	80%	22	73.3%
Grade 3	12	40%	8	26.6%	6	20%	5	16.6%
Grade 4	1	3.3%	3	10%	-	-	3	10%



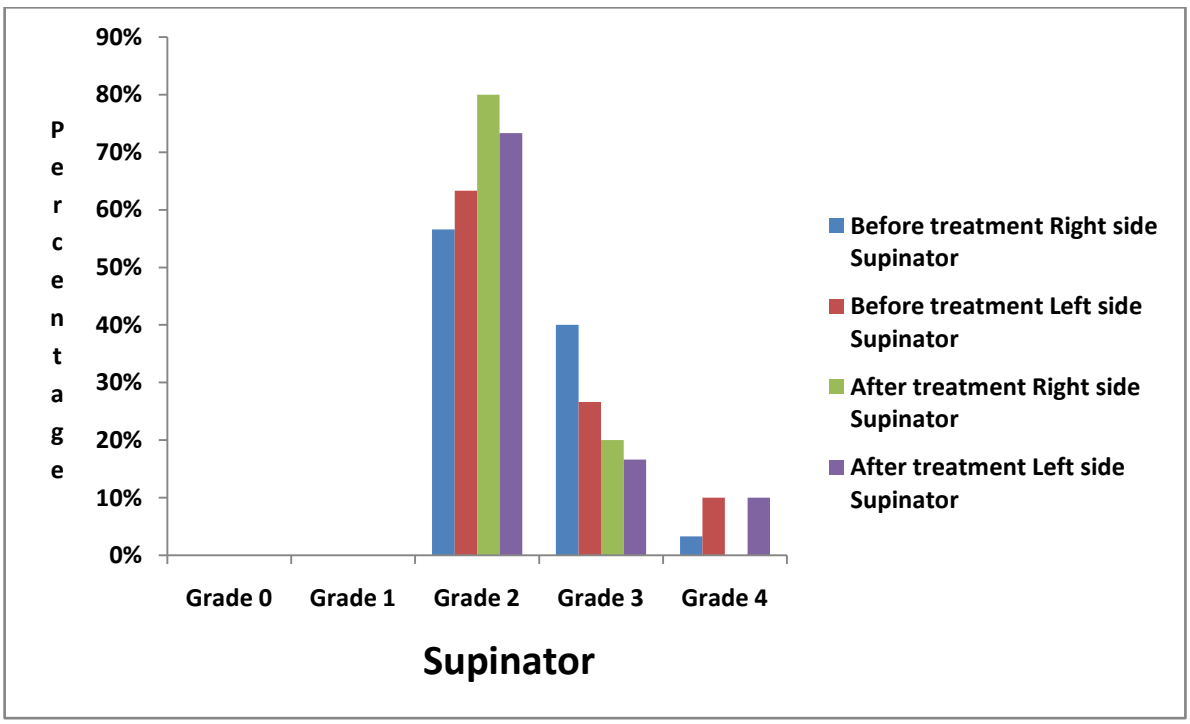
TRICEPS:

Grade	Before treatment				After treatment			
	Right		Left		Right		Left	
	No of cases	Percent	No of cases	Percent	No of cases	Percent	No of cases	Percent
Grade 0	-	-	-					
Grade 1	-	-						
Grade2	17	56.6%	19	63.3%	26	86.6%	22	73.3%
Grade 3	10	33.3%	8	26.6%	4	13.3%	5	16.6%
Grade 4	3	10%	3	10%	-	-	3	10%



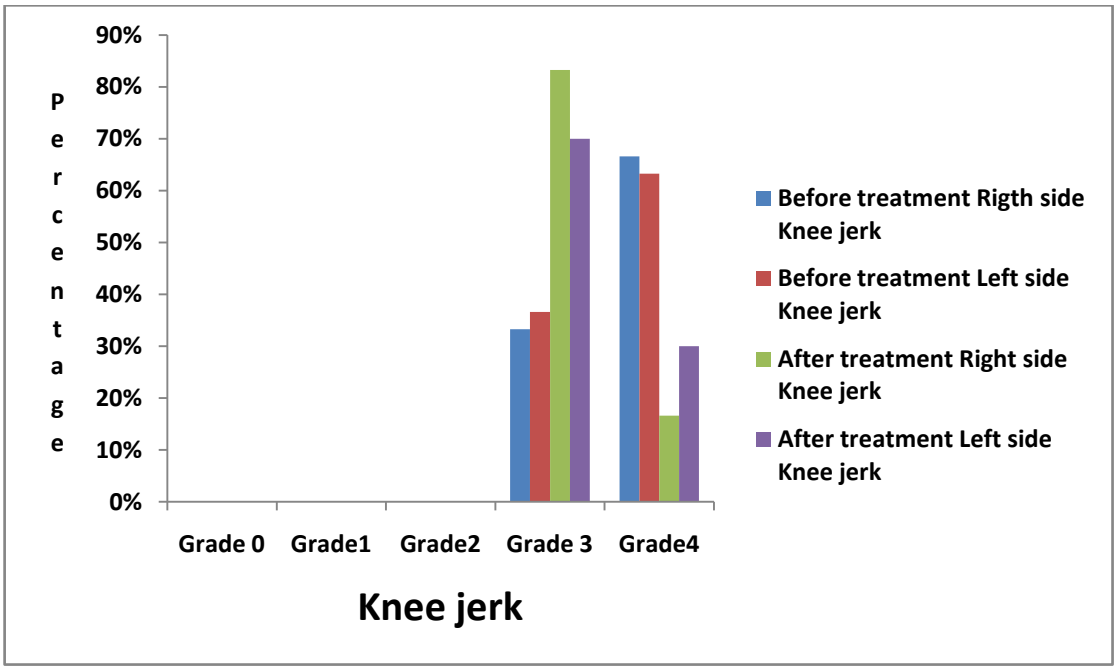
SUPINATOR:

Grade	Before treatment				After treatment			
	Right		Left		Right		Left	
	No of cases	Percent	No of cases	Percent	No of cases	Percent	No of cases	Percent
Grade 0	-	-	-	-	-	-	-	
Grade 1	-		-	-	-	-	-	
Grade2	17	56.6%	19	63.3%	24	80%	22	73.3%
Grade 3	12	40%	8	26.6%	6	20%	5	16.6%
Grade 4	1	3.3%	3	10%	-	-	3	10%



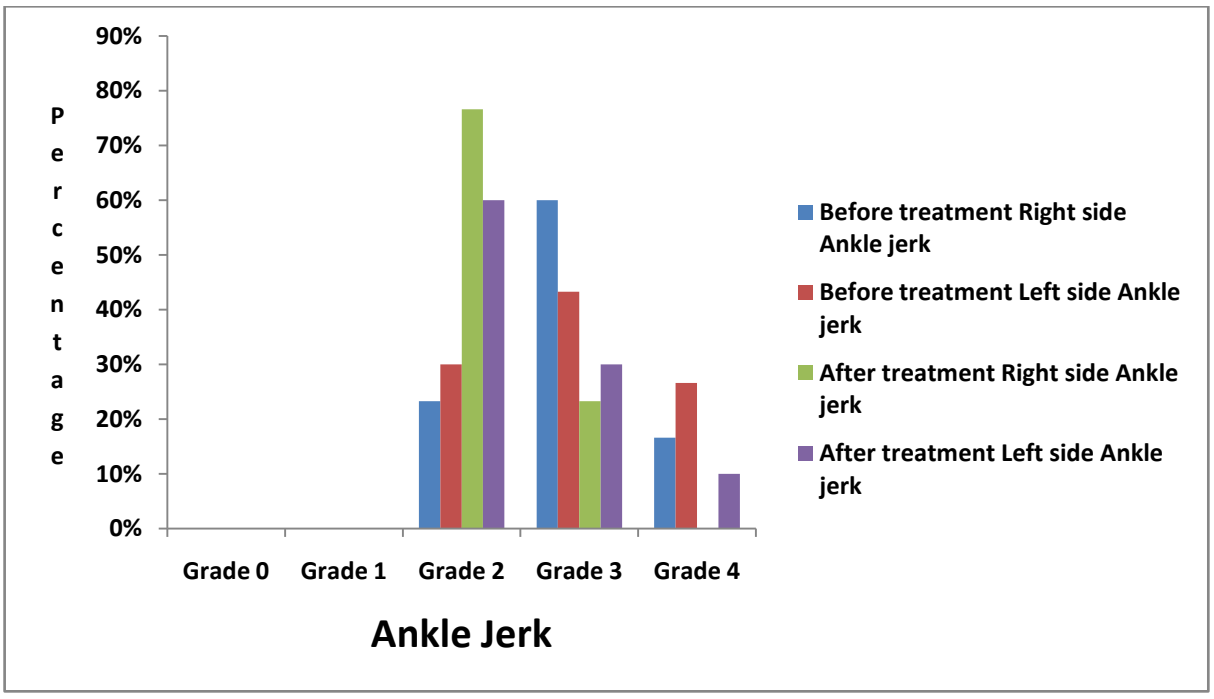
KNEE JERK:

Grade	Before treatment				After treatment			
	Right		Left		Right		Left	
	No of cases	Percent	No of cases	Percent	No of cases	Percent	No of cases	Percent
Grade 0	-	-	-	-	-	-	-	
Grade 1	-		-	-	-	-	-	
Grade2	-	-	-	-	-	-	-	
Grade 3	10	33.3%	11	36.6%	25	83.3%	21	70%
Grade 4	20	66.6%	19	63.3%	5	16.6%	9	30%



ANKLE JERK:

Grade	Before treatment				After treatment			
	Right		Left		Right		Left	
	No of cases	Percent	No of cases	Percent	No of cases	Percent	No of cases	Percent
Grade 0	-	-	-		-		-	
Grade 1	-		-		-		-	
Grade2	7	23.3%	9	30%	23	76.6%	18	60%
Grade 3	18	60%	13	43.3%	7	23.3%	9	30%
Grade 4	5	16.6%	8	26.6%	-	-	3	10%



Grade 0 - Absent

Grade 1 – Sluggish, obtainable with reinforcement

Grade 2 – Readily electable, normal (like normal ankle jerk)

Grade 3 – Brisk/increased (like normal knee jerk)

Grade 4 – Exaggerated/associated with clonus (sustained/ill-substained)

24. ASSESSMENT SCALES

ASHWORTH AND MODIFIED ASHWORTH SCALE

S.No	I.P/ O.P No	Ashworth scale		Modified Ashworth scale	
		Before	After	Before	After
1	J35430	G3	G0	G3	G1
2	J12304	G0	G0	G0	G0
3	J32268	G3	G1	G3	G1+
4	J73325/0153-17	G0	G0	G0	G0
5	J73308/0197-17	G3	G1	G3	G1+
6	J77120/033-18	G3	G1	G3	G1+
7	J73621/0230-17	G0	G0	G0	G0
8	I75399	G2	G0	G2	G1
9	J83360	G3	G1	G3	G1+
10	J42382/0244-17	G4	G2	G4	G2
11	J94318/0184-18	G3	G1	G3	G1+
12	J78239	G2	G0	G2	G1
13	J91230	G2	G0	G2	G1
14	J89415	G2	G0	G2	G1
15	J57667/0290-18	G3	G1	G3	G1+
16	F84077/0606-18	G3	G1	G3	G1+
17	J97621	G2	G0	G2	G1
18	J97076	G2	G0	G2	G1
19	K03676/0431-18	G3	G1	G3	G1+
20	K10779/0422-18	G2	G1	G2	G1+
21	K10780/0423-18	G2	G1	G2	G1+
22	K12603	G2	G0	G2	G1
23	E89125	G2	G0	G2	G1
24	K18069	G3	G1	G3	G1+
25	I69163	G4	G2	G4	G2
26	J45333	G2	G0	G2	G1
27	J88827	G3	G1	G3	G1+
28	K20331/ 0562-18	G2	G0	G2	G1
29	K18463/0512-18	G3	G1	G3	G1+
30	J85220/0614-18	G4	G3	G4	G3

ASHWORTH SCALE:

S. No	Grading	Before treatment		After treatment	
		No of cases	Percentage%	No of cases	Percentage%
1.	Grade 0	3	10%	14	46.6%
2	Grade 1	-	-	13	43.3%
3	Grade 2	12	40%	2	6.6%
4	Grade 3	12	40%	1	3.3%
5	Grade 4	3	10%	-	-

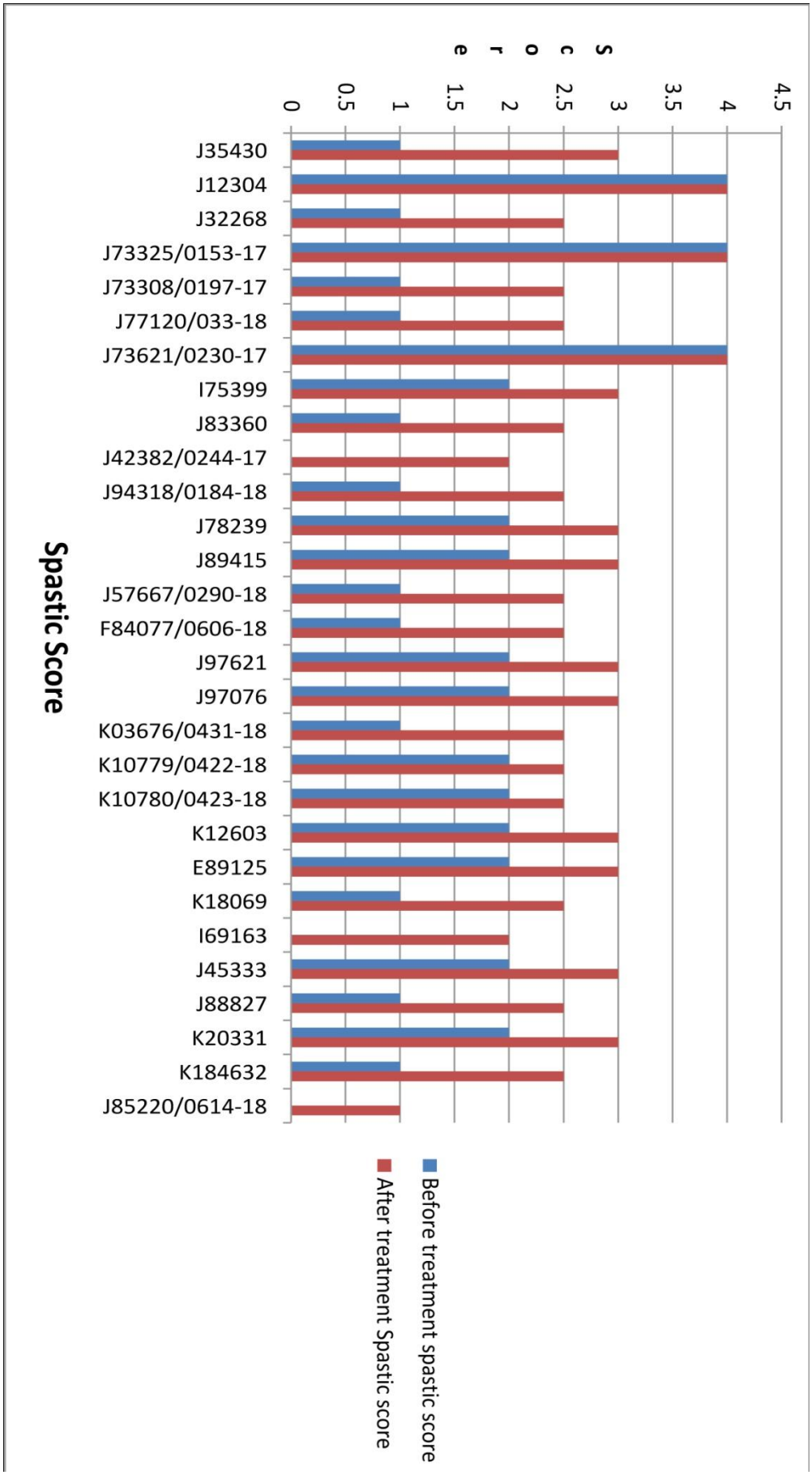
MODEFIED ASHWORTH SCALE:

S. No	Grading	Before treatment		After treatment	
		No of cases	Percentage%	No of cases	Percentage%
1.	Grade 0	3	10%	3	10%
2	Grade 1	-	-	10	33.3%
3	Grade 1+	-	-	13	43.3%
4	Grade 2	12	40%	2	6.6%
5	Grade 3	12	40%	1	3.3%
6	Grade 4	3	10%	1	3.3%

25. RESULTS BASD ON THE SPASTICITY ASSESSMENT (MODIFIED ASHWORTH)

S.No	I.P/ O.P No	Modified Ashworth scale Grade with score	
		Before	After
1	J35430	G3(1)	G1 (3)
2	J12304	G0 (4)	G0 (4)
3	J32268	G3 (1)	G1+ (2.5)
4	J73325/0153-17	G0 (4)	G0 (4)
5	J73308/0197-17	G3(1)	G1+ (2.5)
6	J77120/033-18	G3 (1)	G1+ (2.5)
7	J73621/0230-17	G0 (4)	G0 (4)
8	I75399	G2 (2)	G1(3)
9	J83360	G3 (1)	G1+ (2.5)
10	J42382/0244-17	G4 (0)	G2 (2)
11	J94318/0184-18	G3 (1)	G1+ (2.5)
12	J78239	G2 (2)	G1(3)
13	J91230	G2 (2)	G1 (3)
14	J89415	G2 (2)	G1(3)
15	J57667/0290-18	G3 (1)	G1+ (2.5)
16	F84077/0606-18	G3 (1)	G1+ (2.5)
17	J97621	G2 (2)	G1(3)
18	J97076	G2 (2)	G1(3)
19	K03676/0431-18	G3(1)	G1+ (2.5)
20	K10779/0422-18	G2 (2)	G1+ (2.5)
21	K10780/0423-18	G2(2)	G1+ (2.5)
22	K12603	G2 (2)	G1(3)
23	E89125	G2 (2)	G1(3)
24	K18069	G3(1)	G1+ (2.5)
25	I69163	G4 (0)	G2 (2)
26	J45333	G2 (2)	G1 (3)
27	J88827	G3 (1)	G1+ (2.5)
28	K20331/ 0562-18	G2(2)	G1 (3)
29	K18463/0512-18	G3 (1)	G1+ (2.5)
30	J85220/0614-18	G4 (0)	G3 (1)

Before treatment		After treatment					
Grading	**No of cases**	**Grade 0**	**Grade1**	**Grade1+**	**Grade2**	**Grade 3**	**Grade 4**
Grade 0	3	3	-	-	-	-	-
Grade1	-	-	-	-	-	-	-
Grade1+	-	-	-	-	-	-	-
Grade2	12	-	10	2	-	-	-
Grade 3	12	-	1	11		-	-
Grade 4	3	-	-	-	2	1	-
Total	30	3	11	13	2	1	


Spastic Score
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
J35430
J12304
J32268
J73325/0153-17
J73308/0197-17
J77120/033-18
J73621/0230-17
I75399
J83360
J42382/0244-17
J94318/0184-18
J78239
J89415
J57667/0290-18
F84077/0606-18
J97621
J97076
K03676/0431-18
K10779/0422-18
K10780/0423-18
K12603
E89125
K18069
I69163
J45333
J88827
K20331
K184632
J85220/0614-18
Before treatment spastic score
After treatment Spastic score

Result:

Based on the Modified Ashworth scale 30 Balavaatham children were selected for the trial, out of them 3 children were reported with Grade 0 (Score 4) (No increase in muscle tone) but with the features of difficulty in using the limbs, after treatment they had Grade 0 (Score 4) but the difficulty in using the limbs was gradually reduced finally they were able to walk freely.

Out of the remaining 27 children, 12 children were reported with Grade 2 (Score 2) at the onset of the treatment, out of them the clinical conditions of 10 children (83.3%) were improved to Grade 1 (Score 3) stage, and the remaining 2 children (16.6%) were improved to Grade 1+ (Score 2.5) stage at the end of the treatment, this showed a good prognosis.

Out of 12 children with Grade 3 (Score 1) at the onset of the treatment, single (8.3%) child was improved to Grade 1 (Score 3) and the remaining 11children (91.6%) were improved to Grade 1+(Score 2.5) level.

Out of 3 children with Grade 4 (Score 0) at the onset of the treatment, 2 children (66.6%) were improved to Grade2 (Score2) level and a single child (33.3%) remains static with the same symptoms as Grade 4(Score0).

At the end of the treatmental course, very good improvement was noted, from the trail drug it is proved that, that the drug. The drug reduced the Spasticity of the affected children.

STATISTICAL ANALYSIS

All collected data were entered into MS Excel softwares using different columns as variables and row as patients. SPSS software is used to perform statistical analysis. Basic descriptive statistic include frequency distributions and cross- tabulations were performed. The quantity variables were expressed as Mean ± Standerd Deviation and qualitative data as percentage. A probability value of >0.0000 was considered as indicate the statistical significant paried "t" was performed for determining the significan between before and after treatment.

Paired sample Statistic (Spasticity Scale) Score Before treatment and After treatment

Variable	**Obs**	**Mean ± St**	**95% of con. I**	**$_p$Value $_t$ Value**
Before treatment	30	1.6 ± 1.037	1.212	11.58>0.0001
After treatment	30	2.75± 0.598	2.526	

The mean± standard deviation of Spasticity scale score at before and after treatment were 1.6±0.1.037and 2.75±1.0.598 respectively which is statistically significant (t=11.58, p>0.0001).

DISCUSSION

The about Preclinical and clinical evaluation of baala vaatham (paresis) with siddha therapeutic management in children, conducted with the trial drug "Chitra Mutti kudineer" (Internal) and Baala Vaatha thylam (External) in reducing the spasticity and restricted movement in treating Baala Vaatham. The clinical features of Baala Vatham in siddha literature can be correlated to Paresis in modern science. Paresis is a condition typified by a weakness of movements, or partial loss of voluntary movement or impaired movement.

Baala Vaatham is a vaatha disease which causes derangements of Vaathakutram which causes increasing kabam and pitha kutram.

Vaathathathu is responsible for the functioning of udal Thathukal uniformly derangement of Vaatha kutram leads to pricking pain over the body, body ache and increase in the Pitha kutram causes swelling and increased body temperature, finally Kaba kutram accompanies causing stiffness, restricted of movements.

As Baala Vaatham is caused due to the damage of nervous system, especially the spinal cord, the trial drugs which possess the property of Anti-vaatha, Anti-inflammatory, Analgesic, Tonic, Stimulant, Neuroprotective, Nervine tonic, Nutritive, Anti-oxidant property as mentioned in siddha literature were selected, and the trail drug were prepared by the Author in the Gunapadam practical laboratory of National Institute of Siddha, after getting proper authentication of raw drugs from the Medicinal botany department at NIS, Chennai 47, under the supervision of the guide. National Institute of Siddha, Chennai - 47. The trial drug was prepared by the standard operating procedure as mentioned in the protocol.

The Physicochemical analysis was done at the physicochemical lab of The Dr.M.G.R. University Chennai respectively. It revealed the presence of physicochemical level.

The Phytochemical analysis was done at the phytochemical lab of The Dr.M.G.R.University Chennai respectively. It revealed the presence of the Carbohydrates, Saponins, Flavanoids, Diterpenes, Quinones.

The Biochemical qualitative and quantitative analysis were done at the biochemistry lab of NIS Chennai respectively. It revealed the presence of effective minerals and the existence of the drug molecules at micro level.

The safety of the trial drug usage and standardization of the trial drug through biochemical analysis were also ensured during the study.

The Preclinical toxicity studies (acute Toxicity) for the above said trial drug was conducted at National Institute of Siddha, after getting the proper acceptance and permission from the Institutional Animal Ethical Committee (IAEC). The trial drug was proved to be safe for human beings from the observations made from the study.

The clinical study was conducted with a well-defined protocol and a proper proforma after the approval of the Institutional Ethical Committee. After screening patients reporting at the OPD of department of Kuzhanthai Maruthuvam, 30 cases were selected for induction to the trial. Before enrolment into the trial the informed consent was obtained from the parents.

30 children of both genders were recruited for this study. Among the 30 patients 15 were treated in OPD children and the remaining 15 were treated in IPD children, visit the hospital daily. For In children, who were not in a situation to stay in the hospital for a long time, were advised to attend the Out-Patient Department of Kuzhanthai Maruthuvam for further follow- up.

The treatment was aimed at normalizing the deranged thodams and providing relief from symptoms.

The children was treated with trial drugs Chitra Mutti kudineer 5 to 15ml twice a day with palm jagery and Baala Vaatha thylam (external) for 45 days . Parents were instructed to give medicines regularly, advised to follow pathiyam (avoid tamarind, tubers, etc.) and advised to avoid cold exposure .Out-Patients were advised to visit the OPD daily for general massage. For Out-Patients the drugs were given for 45days and the clinical assessment was done on 0th day, and 45th day.

After the treatment, parents were advised to bring the children to visit the Out-Patient ward of Department of Kuzhanthai Maruthuvam for follow-up.

From this study, the affected gender of the disease was found to be high in male gender. Among 30 children 53.3% males and 46.6%females was affected .

In this study, 56.6 % of children came under the age group between 2-5 years, 38.3% of children were under the age of 6-9 years, 10 % of children were between 10-12 years.

In this study, based on the socio economic state, 36.6% come under upper middle class , 26.6% were lower middle and upper middle level income group, 6.6% were from lower level income group and 3.3% were from upper level income group.

Among 30 children, 86.6% of patients non vegetarian and 13.3% of patients were vegetarian.

Among the 30 children, 76.6% of children from Neithal thinai, 16.6% of children from Marutham and 6.6% from Kuruinji thinai.

In this study Out of 30 children, 40% of the children were treated in Munpani kaalam, 20% of them in Pinpani kaalam, 20% in illavenir kalam, 6.6% children were treat in Muthuvenil kalam and the remaining 3.3% in Kaarkalam.

In 30 children, 83.3 cases cunder Rasogunam, 10% under Sathuva Gunam, 6.6% under Thamogunam.

Among 30 children, all of them came under thontha thegi.

In Vaatham, Viyaanan and Samanan affected in all the 30 children (100%), In 6% children Abaanan affected and in 10% of children koorman was affected.

In Pitham, Anar pitham was affected in 20% of cases, Ranjagapitham and Saathagam affected in all the 100% of cases.

Among the 30 cases, Avalambagam and Santhigam affected in all the 30 cases.

In Envagaithervugal, Sparisam was affected in all the 30 cases. The Naadi in Baala Vaatham was recorede as 40% with Vathapitham, 10% pithavatham, 4% Kaba Vatham, 6% which Kabapitham.

Among 30 cases, in 8 cases(26.6%) was found to be with Vaatha neer, 5 cases (17%) with pita neer, and17cases (56.6%) With kaba neer.

In this study, Saaram, Senneer and Oon were affected in all the 30 cases (100%). Kozhuppu was affected in 20 cases (66.6%)

In Kanmendrium, Kai was affected in 15 cases (50%) and Kaal was affected in 28 cases (93.3%).

During cranial nerve examination 2 children showed abnormality in optic, trigeminal, facial and spinal accessory nerves and one child shows abnormality in glossopharyngeal nerve and Vestibulo cocclear nerve.

Among 30 cases 40% of the cases were recorded as para paresis, 33.3% as Hemi paresis,13.3% as Mono paresis 10% as Quadri paresis and remaining 3.3% as Triparesis.

Among the 30 children, 5 (16.6%)children had a normal bulk of the ,muscle before the onset of treatment but they had difficulty in using the limbs and the remaining 25 (83.3%) were affected in the muscle bulk. After the course of treatment the 83.3% affected children's muscle bulk was gradually improved. 7 cases had no improvement in their muscle bulk.

All the children were found have hyper tonia and after treatement the spasticity was reduced in 93% (28) of the children, remaing 7% (2) children spasticity was static.

30 hypertonic children were selected for the study, among them 28 children's muscle tone was improved to the normal tonic stage during the treatment period and remaining 7 children had no improvement in their muscle tone.

In the superficial reflex mostly 90% children had a positive reflex and 10% in negative. after that the child reflex improve about 93.3% and remains 6.6% in a same level.

In the superficial reflex

In the right biceps muscle was affected in a 43.3% children and it was reduced 6% to after the treatment .

In left biceps muscle was affected in a 36.6% children and it was reduced 26.6% to after the treatment.

In the right triceps muscle was affected in a 43.3% children and it was reduced 4% to after the treatment

In the Left triceps muscle was affected in a 36.6% children and it was reduced 26.6% to after the treatment

In the Right Supinator muscle was affected in a 43.3% children and it was reduced 20% to after the treatment

In the Left Supinator muscle was affected in a 36.6% children and it was reduced 20% to after the treatment

In the Right knee jerk was affected in a 66.6% children and it was reduced 16.6% to after the treatment

In the Left knee jerk was affected in a 63.3% children and it was reduced 30% to after the treatment

In the Right Anke jerk was affected in a 76.6% children and it was reduced 7% to after the treatment

In the Left Anke jerk was affected in a 70% children and it was reduced 40% to after the treatment

The spasticity assessment was done in all the 30 children based on Ashworth and Modified Ashworth scale.

Based on the Modified Asworth scale – Totally 30 children ware treated for Balavaatham out of them 3 children ware reported with Grade 0 (No increase in muscle tone) but with features of difficulty in using the limbs, after treatment they had Grade 0 but the difficulty using the limbs was improved and they ware able to walk feely.

Out of the remaining 27 children 12 children reported with Grade 2 at the onset of the treatment out of them 10 (83.3%) children had which exhibits Grade 1, and 2 (16.6%) children had Grade 1+ at the end of the treatment. Which shows a good improvement.

Out of 12 children with Grade 3 at the onset of the treatment 1 (8.3%) child improved to Grade 1 and 11(91.6%) children had improvement to Grade 1+.

Out of 3 children with Grade4 before treatment 2 (66.6%) children improved to Grade2 and 1(33.3%) child remains static at the same condition as Grade 4.

As there is a very good improvement in the treated children.

The short term toxicity study was conducted for the trial drug CHIRTA MUTTI KUDINEER in National Institute of Siddha and it showed no abnormal results. Hence the safety of the trial drug was also proved.

SUMMARY

The disease Baala Vaatham was taken for the clinical study with Chitramutti Kudineer Chooranam as internal medicine and Baala Vatha thylam as external application. For the clinical study, 30 children were selected based on the approved protocol. This study has been approved by IEC of NIS [Date of IEC Approval & its number: NIS/IEC/2016/11-22/14.10.2016]. Animal studies were carried out after obtaining approval from the Institutional Animal Ethical Committee (IAEC) Approval & its number NIS /IAEC – IV/06/05012017 and the trial was registered in Clinical Trial Registry of India CTRI/2018/04/013296) Hence the study is safely executed on children and there was no adverse drug reactions noted during the study period.

The toxicological evaluations were conducted as per WHO guidelines for safety evaluation of Chitramutti Kudineer Chooranam. In acute toxicity study, no signs of toxicity and mortality were observed throughout the study. In organs of Control group, no abnormality was detected. In the necropsy normal structure present in test group of animals.

30 children, were treated with trial medicine in OPD, IPD of Department of Kuzhanthai Maruthuvam, Ayothidoss Pandithar Hospital of National Institute of Siddha, Chennai-47. The detailed study on Chitra mutti Kudineer Chooranam with reference to its aetiology, pathogenesis, clinical features, diagnosis and treatment with trial drugs were done. The children were diagnosed and included on the basis of MODIFIED ASHWORTH scale (Spasticity Assessment scale) and the results were observed by Modified Ashworth scale before and after treatment.

Based on the Modified Ashworth scale – Totally 30 children ware treated for Balavaatham out of them 3 children were reported with Grade 0 (No increase in muscle tone) but with features of difficulty in using the limbs, after treatment they had Grade 0 but the difficulty using the limbs was improved and they were able to walk feely.

Out of the remaining 27 children 12 children reported with Grade 2 at the onset of the treatment out of them 10 (83.3%) children had which exhibits Grade 1, and 2 (16.6%) children had Grade 1+ at the end of the treatment. Which good improvement.

Out of 12 children with Grade 3 at the onset of the treatment 1 (8.3%) child improved to Grade 1 and 11(91.6%) children had improvement to Grade 1+.

As there is a very good improvement after treatment as noted above it can be concluded that the drug has reduced the spasticity of the affected children.

CONCLUSION

The acute Safety study conducted on the trial drug shows that the trial drug Chitra mutti kudineer Chooranam (Internal) safe for human usage.

The Physiochemical analysiscarried out proves the percentage of Loss on drying, Total Ash value, Acid insoluble ash, Water soluble ash, Water soluble extraction, Alcohol soluble actions.

The Phytochemical analysis shows the presence of Carbohydrates, Flavonoids, Saponin, Diterpins, Quinones.

The biochemical analysis shows the presence of Potassium, and Iron, Chloride, Phosphate, Alkaloids, Tannic acids .

This study proved that formulation of (medicine /drug)has given good results in many children through clinical trials and it may be better solution for reducing the muscle dryness, spasticity, increasing the blood circulation, increasing the nervine strength, muscle bulk, tone, power, and reflex thereby reducing the inability or difficulty of movements in the affected limb. This has created confident in paresis children to improve their quality of life and to perform their day to day activities. It also reduces the risk of their parents and freed them from their physical and mental burden.

No adverse effects were noted during the course of treatment.

BIBILIOGRAPHY

1. Dr. T. Mohan raj B.Sc, B.S.M , Mathalai Noi Thokuthi Part III., Edition 2009. Song No.196 Pg, No. 243.
2. Dr. K.S. Uthamarayan H.P.I.M Thotra Kirama Aaraichium Siddha Marthuva Varalaru, Edition 2008. P.g No: 193
3. Dr. K.S. Uthamarayan H.P.I.M Siddha Maruthuvanga surukam, Edition 2006. p.g No.140
4. Dr. M. Shanmuga velu, H.P.I.M , Noi Nadal Noi muthal Nadal Edition2009. P.g. No 23
5. Dr. M. Shanmuga velu, H.P.I.M , Noi Nadal Noi muthal Nadal Edition 2009. P.g. No 24
6. Dr. M. Shanmuga velu, H.P.I.M , Noi Nadal Noi muthal Nadal Edition 2009. P.g. No 233
7. Agathiyar Kanma Kaandam, song 56, P.g No.23
8. Thaerayar Vaagada, song 16, P.g No:5
9. Yugi Vaithiya Chinthamani, Song 245, P.G No: 76
10. Dr. K.S. Uthamarayan H.P.I.M , Siddha Maruthuvanga surukkam, Page No: 292
11. Dr. S. Cithambarathanu pellai Baala Vaatha Nethanam , , Publication 10.9.2001. P.g. No.6- 10.
12. Dr. T. Mohan rai B.Sc.M., Tharalmani Pala Vaagadam , (Vaathathku kasayam song No. 29), Edition 2009. Pg, No.10
13. Dr. T. Mohan raj B.Sc, B.S.M , Mathalai Noi Thokuthi Part III. Song No.197 Edition 2009. Pg, No. 243.
14. Dr. K.S. Uthamarayan H.P.I.M , Siddhar Aruvai Maruthuvam, Year of Edition 2006. p.g No.29
15. Dr. K.S. Uthamarayan H.P.I.M , Siddhar Aruvai Maruthuvam, Year of Edition 2006. p.g No.28
16. Editor in chiefnA parthasarathy, Executive EditornPSN Menon, Managing Editor MAK Nair, Senior Editor YC Maruthu, Dilip Mukherjee, Swati Y Bhave, Gs Hathi, HPS Sachdev, M Vijayakumar, IAP Text book of Pediatrics, Edition 2, year 2002, P.g No:280
17. The American Heritage Medical Dictionary copyright 2207, 2004 by Houghton Mifflin company .Published by Houghton.

18. Sarakugalin sutheemuraigal,Sikitcha Rathna Deepam
19. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 470
20. Review: Some phytochemical, pharmacological and toxicological properties of ginger (Zingiber officinale Roscoe) : A review of recent research
21. American chemicals science journal Phytochemical screening and Quantitative Evaluation of Nutritional Values of Zingiber officinalae
22. Medicinal properties of Zingiber officinale Roscoe- A Review
23. Physiological and Pharmaceutical effects of Ginger (Zingiber officinale Roscoe) as a valuble medicinal plant
24. Review Article: Pharmacological Activity of Zingiber officinale Rajesh Kumar Mishra* , Anil Kumar and Ashok Kumar Pharmacy College, Itaura, Chandeshwar, Azamgarh, Uttar Pradesh, India Vol. 1 (3) Jul-Sep 2012
25. 25. K.S. Murukesha muthaliyar, Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 36
26. Scholars Research Library Der Pharmacia Lettre, 2017, 9 (4):78-84 Remedial effect of Alpinia officinarum
27. 25 Top Benefits of Alpinia officinarm
28. A Review on the Pharmacological Activities and Phytochemicals of *Alpinia officinarum* (Galangal) Extracts Derived from Bioassay-Guided Fractionation and Isolation
29. ***Alpinia***: the gold mine of future therapeutics
30. Scholars Research Library Der Pharmacia Lettre, 2017, 9 (4):78-84 Remedial effect of Alpinia officinarum
31. Scholars Research Library Der Pharmacia Lettre, 2017, 9 (4):78-84 Remedial effect of Alpinia officinarum
32. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 846
33. Garlic Phytochemicals
34. Constituents and phytochemicals of Garlic. Allium sativum L
35. International Journal of Pharmaceutical scienes and research
36. Physico chemical Characteristics of black Garlic (Allium sativum L.) Article in Journal of the Korean society of Food science and Nutrition 37 (4). April 2008

37. International Journal of Food Properties. Allicin and other Functional Active components in Garlic: Health benefits and bio availability
38. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 446
39. International juernals of Drugs and Development
Pharmacognostic and ppreliminary Phyto chemical investigations on leaf extracts of Pavoni zeylanica Cv
40. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 140
41. Compositional studies and biological activites of some mash been (Vigna mungo (L.) Hepper) cultivars commonly
42. International Journal of development and research
43. Evaluation of Anti- osteoarthritic activity of Vigna mungo in papain induced osteoarthriteis model
44. Review of Literature, Kiritikar And Basu, (2005)
45. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 853
46. Neem oil benefits/ skin, Hair, Dental Health, / Treats Burns, Aethritis, Muscle pain.
47. Neem (Azadirachta indica) Benefits, products and uses 7 Dec 2010.
48. K.S. Murukesha muthaliyar, Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 850
49. Nerol India (2000) Beh: Case – control study
Dept. Of neurology, All India Institute of Medical Sciences, New Delhi, India. madhuribehari@hotmail.com)
50. Pharmocological activites of areca catechu Linn. – A Review
51. K.S. Murukesha muthaliyar Siddha Meteria Media (Medicinal Plants Division) Publication- 2008, P.g No: 222
52. Bunga / **Areca catechu** / **ARECA NUT** / **betel nut**: Philippine Medicinal ... http://www.stuartxchange.com/Bunga.html
53. Botanical. Com
54. Review Article Piper Betle: Phytochemical, Pharmacological And Nutritional Value in Health Management May- June 2016.
55. Phytochemical in palm jiggery.

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

Form I- SCREENING

1. S.I. No: **2. OP/IP No:** **3. Name:**

4. Age : **5. Gender :** **6. Date of Enrolment**

7. Informant: **8 . Reliability:**

INCLUSION CRETERIA:

S. No	Inclusion	Yes	No
1.	Children of age group under 2-12 years		
2.	Mono/Para/Hemi/Tri/Double/Tetra/Quadri paresis		
3.	Weakness of one or more limb		
4.	Loss of power and tone in muscles of the affected limb		
5.	Difficulty/ Inability in using the affected limb against gravity and resistance		
6.	Difficulty in using the affected limb		

EXCLUSION CRETERIA:

S.No	Exclusion	Yes	No
1.	H/o Epilepsy		
2.	Severe Aggressiveness with ADHD		
3.	Autism		
4.	H/o cerebral palsy		
5.	Congenital Heart Disease		
6.	Any other serious illness		

ADMITTED TO TRIAL: Yes/No Signature of the Investigator

IF YES, SERIAL NO :

Signature of the Guide

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM II -CONSENT

CERTIFICATED BY INVESTIGATOR

I Certify that I have enclosed all the details about the study in the terms readily understood by the parent/guardian.

Signature _____

Date _____

Name _____

CONSENT BY PARENT

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical evaluation, and the nature of disease and its treatment and follow-up including external therapy to be performed to monitor and safeguard my son/daughter's body functions.

I am aware of my rights to my son/daughter out of the clinical assessment at any time during the course of the clinical assessment without giving to give the reasons for doing so.

I, exercising my free of choice, here by give my consent to include my son/daughter as a subject in the "pre clinical and Evaluation of Baalavatham (Paresis) with siddha therapeutic management in children". I also give my consent to take photography when and where it is considered as essential.

Date:

Signature _____

Name _____

Signature of the witness _____

Name _____

தேசிய சித்த மருத்துவ நிறுவனம்

அயோதிதாச பண்டிதர் மருத்துவமனை சென்னை 600 047.

குழந்தை மருத்துவத்துறை

பாலவாத நோயின் மதீப்பீட்டினைக் கண்டறியும் ஆய்விற்கான ஒப்புதல் படிவம்

ஆய்வாளரால் சான்றளிக்கப்பட்டது.

நான் இந்த மருத்துவ ஆய்வு குறித்து அனைத்து விபரங்களையும் குழந்தையின் பெற்றோருக்கு புரியும் வகையில் எடுத்துறைத்துள்ளேன் என உறுதி அளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

குழந்தையின் பெற்றோர் ஒப்புதல் படிவம்

என்னிடம் இந்த மதிப்பீட்டினைக் கண்டறியும் ஆய்வின் காரணத்தையும் மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறை பற்றியும் புறமருத்துவ சிகிச்சையின் அவசியம் பற்றியும் திருப்தி அளிக்கும் வகையில் ஆய்வுமருத்துவரால் விளக்கிக் கூறப்பட்டுள்ளது. நான் இந்த மதீப்பீட்டினைக் கண்டறியும் மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல் எப்போது வேண்டுமானாலும் என் குழந்தையை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கிறேன்.

நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு பாலவாத நோயின் மதிப்பீட்டினைக் கண்டறியும் மருத்துவ ஆய்வு மற்றும் இதற்கான மருந்து “சிற்றாமுட்டி குடிநீர்” (உள்மருந்து) “பாலவாதத் தைலம” (வெளிமருந்து) பரிகரிப்புத் திறனைக் கண்டறியும் ஆய்விற்கு எனது குழந்தையை உட்படுத்த ஒப்புதல் அளிக்கிறேன். மேலும் இந்த ஆய்வின் போது தேவைப்படும் இடத்தில் எனது மகன்(அ) மகளை புகைப்படம் எடுப்பதற்கு நான் ஒப்புதல் அளிக்கிறேன்.

தேதி: பெற்றோர் பெயர்:

இடம்: கையொப்பம்:

சாட்சிக்காரர் பெயர்:

கையொப்பம்:

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM III - PATIENT INFORMATION SHEET

Name of the principal Investigator : _____

Name of the Institute : National Institute of siddha,
Tambaram Sanatorium,
Chennai – 47.

INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL.

I, _____ studying as PG scholar at National Institute of siddha, Tambaram Sanatorium is doing a clinical trial on Baala Vaatham.**"BAALA VAATHAM "(Paresis) -** is a condition of muscular weakness caused by nerve damage. It is characterised by weakness of voluntary movement of one or more limbs. In the siddha literature Madhalai noi thoguthi – III it has been illustrated that Baalavaatham is characterised by Inability/ Difficulty to use both the limbs, loss of power in the limb, weakness of nerves , increased kabba hummer in the body, chilness of the body and spastisity of the affected muscles. I would conduct a children trial on Baala vaatham with the medicine chitramutti kudineer mentioned in the siddha text Tharala mani Balavagadam and Balavatha thylam (external) mentioned in the text Madhalai noi thoguthi III . Prevalence of paresis in the united states nearly 1 in 50 people living with paresis – approximately 5.4 million people.

Approximately 1.7 percent of the U.S. population, or 5,357,970 people reported they were living with some form of paresis. In this regard, i am in a need to ask you are few questions. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

You can choose not to take part. However, taking part in the study may be of benefit to the community, as it may help us to understand the problem of defaulters and potential solutions. In the event of any adverse effect the child will be given full care in NIS. If your agree your child to be a participant in this study, he/she will be included in the study primarily by signing the consent for and then you will be given the Chitr Mutti Kudineer (Internal Medicine) 5-15ml twice a day and Baala vatha thylam (External therapy) for a period of 45 days. The information I am colleting in this study will remain between you and the principal investigator (Myself). This study has been approved by the IEC of NIS/IEC/2016/11-22/14.10.2016. The questionnaire will take approximately 1 hour of your time. If you wish to find out more about this study before taking part, you can ask me all the questions. You can also contact the member- secretary of Ethics committee, National Institute of Siddha, Chennai 600 047. Tel no : 91-44-22380789, for rights and participation in the study.

தேசிய சித்த மருத்துவ நிறுவனம்

அயோதிதாச பண்டிதர் மருத்துவமனை சென்னை 600 047.

குழந்தை மருத்துவத்துறை

பாலவாத நோயின் மதீப்பீட்டினைக் கண்டறியும் ஆய்விற்கான தகவல் படிவம்

பாலவாத நோய்க்கான மதீப்பீட்டினைக் கண்டறியும் ஆய்வு மற்றும் சித்த மருந்து "சிற்றாமுட்டி குடிநீர்" (உள்மருந்து) மற்றும் "பாலவாத தைலம" (வெளிமருந்து) பரிகரிப்புத்திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்.

முதன்மை ஆராய்ச்சியாளர் பெயர் : மரு. க. ரிதம்பராதேவி

நிறுவனத்தின் பெயர் : தேசிய சித்த மருத்துவ நிறுவனம்

தாம்பரம் சானட்டோரியம் சென்னை 47.

தேசிய சித்த மருத்துவ நிறுவனத்தில் பட்ட மேற்படிப்பு பயின்று வரும் நான்இ "பால வாதம்" என்னும் நோயின் மருத்துவ ஆராய்ச்சியில் ஈடுபட்டுள்ளேன். இந்நோயானது நரம்புகளை பாதித்துஇ கை கால்களை அசைக்க முடியாமல் தளர்வுரச் செய்யும் இயல்புடையதுஇ ஆற்றல் குறைந்து காணப்படும், கை கால்கள் விளங்கிடாதுஇ நரம்பெல்லாம் தளர்ந்து நிற்க்கும் விசை தளறும் சீதம் தோன்றும் தேகத்தில் குளிர்ச்சி உண்டாகும் தேகம் விறைத்து காணப்படும்இ என்னும் இயல்புடைய நோய் என்றும் அதற்கான(வெளிமருந்து) "பாலவாதத் தைலம்" மதலை நோய் தொகுதி-2 என்னும் சித்த மருத்துவ நூலில் குறிப்பிடப் பட்டுள்ளது. (உள்மருந்து) சிற்றாமுட்டி குடிநீர் இதனை "தரளமணிபல வாகடம" என்னும் நூலிலும் கொடுக்கப்பட்டுள்ளது.

இந்த ஆராய்ச்சி சம்மந்தமாக சில கேள்விகளை தங்களிடம் கேட்கவும் பரிசோதனைக்கு தங்களது குழந்தையை உட்படுத்தவும் உள்ளேன். இது சம்மந்தமான தங்களது குழந்தையின் அனைத்து விபரங்களையும் ரகசியமாக வைக்கப்படும் என உறுதி அளிக்கிறேன். இதில் பயணப்படி எதுவும் கொடுக்கப்பட மாட்டாது. இந்த ஆராய்ச்சியின் போது தங்களது குழந்தையின் உடலுக்கு வேறுபாதிப்பு ஏற்படும்பட்சத்தில் தேசிய சித்த மருத்துவமனையில் தக்க சிகிச்சை அளிக்கபடும்.

இந்த ஆராய்ச்சிக்கு தங்கள் விருப்பத்தின் பேரில் குழந்தையை உட்படுத்தும் பட்சத்தில் (உள்மருந்தாக) 'சிற்றாமுட்டி குடிநீர் 45நாட்கள் இருவேளை பனை வெல்லத்துடனும் (வெளிமருந்தாக) பாலவாத தைலம் எடுக்க வேண்டும்.

இந்த ஆராய்ச்சியில் நோயினராக சேர்ந்த பிறகு தங்களுக்கு விருப்பம் இல்லை எனில் எப்போது வேண்டுமானாலும் தங்களது குழந்தையை இந்த ஆய்விலிருந்து விலக்கிக்கொள்ளலாம்.

இந்த ஆராய்ச்சிக்கு தேசிய சித்த மருத்துவ நீதிநெறி குழுவால் ஒப்புதல் பெறப்பட்டுள்ளது. சான்றிதல் எண் IEC of NIS/IEC/2016/11-22/14.10.2016. இந்த ஆராய்ச்சி சம்மந்தமாக மற்ற விபரங்களுக்கும் நோயின் தன்மை பற்றியும் அறிவதற்க்கும் முதன்மை ஆராய்ச்சியாளரான மரு. க. ரிதம்பராதேவி (பட்ட மேற்படிப்பாளர் குழந்தை மருத்துவ பிரிவு) கைபேசி எண்.7708738987 எப்போதும் தொடர்புகொள்ளலாம். மேலும் இந்த ஆராய்ச்சிக்கு சம்மந்தமான உரிமை மற்றும் பங்களிப்பு பற்றி தெரிந்துகொள்ள IEC Tel No : 91-44-22380789 தொடர்பு கொள்ளவும்.

இந்த மருத்துவ ஆராய்ச்சியில் பயன்படும் மருந்துகள் சிறப்பாக பாலவாத நோய்க்காக அங்கீகரிக்கப்பட்ட சித்த மருத்துவ நூலில் கூறப்பட்டள்ளது. ஏற்கனவே உபயோகத்தில் உள்ளது எந்த வித பக்கவிளைவுகளையும் ஏற்படுத்தவில்லை. மேலும் ஆராய்ச்சிக்கு உட்படுத்தும்போது உணவுமுறையில் பத்தியம் காக்குமாறு அறிவுறுத்தப்படுகிறது.

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM ASSENT - IV FORM

I _____ understand that my parents (mom and dad) / guardian have / has given permission (said its okay) for me to take part in the project above done by _____

I am taking part because I want to. I have been told that I can stop at any time I want to and nothing will happen to me if I want to stop.

_____

Signature

தேசிய சித்த மருத்துவ நிறுவனம்

அயோதிதாச பண்டிதர் மருத்துவமனை சென்னை 600 047.

குழந்தை மருத்துவத்துறை

பாலவாத நோயின் மதீப்பீட்டினைக் கண்டறியும் ஆய்வு

ஒப்புதல் படிவம் குழந்தைக்கானது

_____ ஆகிய நான் தேசிய சித்த மருத்துவ நிறுவனத்தில் பட்ட மேற்படிப்பு குழந்தை மருத்துவத்துறையில் பயிலும் மரு. க. ரிதம்பராதேவி அவர்களால் நடத்தப்படும் பாலவாத நோய்க்கான சிற்றாமுட்டி குடிநீர் (உள்மருந்து) மற்றும் பாலவாத தைலம் (வெளிமருந்து) பரிகரிப்புத் திறனை கண்டறியும் மருத்துவ ஆய்வில் பங்கேற்பதற்கு எனது பெற்றோர் / காப்பாளர் திரு/ திருமதி _____ சம்மதம் தெரிவித்திருப்பதை நன்கு அறிவேன்.

எனக்கு இந்த ஆராய்ச்சி பற்றி புரியும் வகையில் எடுத்துரைக்கப்பட்டுள்ளது. இவ்வாராய்ச்சியில் இருந்து எப்போது வேண்டுமானாலும் விலக எனக்க உரிமை இருக்கின்றது என்பதை பற்றியும் நன்கு தெரிந்த கொண்டு இந்த ஆராய்ச்சியில் பங்கேற் சம்மதிக்கிறேன்.

தேதி:

இடம்:

குழந்தையின் பெயர் :

கையொப்பம் :

பெற்றோர் கையொப்பம் :

கையொப்பம் :

சாட்சிகாரர் கையொப்பம்:

கையொப்பம் :

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM V - CASE RECORD FORM

1. S.I. No :	**2. OP/IP No:**	**3. Name:**
4. Age :	**5. Gender :**	**6. Date of Enrolment:**
7. Informant:	**8 . Reliability:**	

COMPLAINTS AND DURATION:

H/O PRESENT ILLNESS:

H/O PASTILLNESS:

TREATMENT HISTORY:

H/O CONTACT:

ANTENATAL:

H/o Fever with rash	:
H/o Painful lymph adenopathy	:
H/o Threatened abortion	:
H/o Severe anaemia	:
H/o Pre eclampsia	:
Maternal DM/HT	:
H/o Decreased foetal movements	:

NATAL:

H/o prolonged labour :

H/o Pre term delivery :

Nature of delivery : (Home/Hospital)

Forceps/C-section :

H/o Birth injury :

H/o Breech presentation :

NEONATAL HISTORY:

Birth weight of the baby :

H/o Fever/ Rash :

H/o Petechial haemorrhages :

H/o Neonatal Jaundice :

H/o Cyanosis :

H/o Breathlessness at birth :

Neonatal convulsion :

H/o Poor feeding :

H/o Resuscitation done or not :

H/o Lethargy :

H/o Umbilical catheterisation :

DEVELOPMENTAL MILE STONE:

Cry at birth		
Smile		
Head control		
Laughed out loud		
Sit with support		
Rolled over		
Transfer		
Sit without support cowl		
First ward & walk with support		
Stand		

Walk without support		
Put wards together		
Ride tricycle		
Hops on one foot		
Known (R)/(L)		

DIETARY OR NURTITIONAL HISTORY:

IMMUNIZTION HISTORY:

PERSONAL HISTORY:

FAMILY HOSTORY:

H/o Convulsion :

H/o Neurological disorder :

H/o Metabolic disorder :

FAMILY HISTORY:

Whether this problem runs in family? 1.Yes 2.No

If yes, mention the relationship of affected person(s)

DIETARY HISTORY:

Appetite: poor/moderate/good

Type of diet- vegetarian / Non vegetarian

SOCIAL AND ENNVIRONMENTAL HISTORY:

GENERAL EXAMINATION:

1. General appearance : Healthy/unwell/ill

2. consciousness and mental state :

Normal/Delirium/Lethargy/Obtundation/Stupor/Coma

3. Nutritional status :

4. Growth problems :

a) General growth retardation :

b) Localised growth retardation :

c) Tall/Short :

d) Obese/Thin :

5. Posture :

6. Vital signs :

a) Heart rate :

b) Pulse :

c) Respiratory rate :

d) Blood pressure :

e) Temperature :

7. Anthropometry :

a) Weight :

b) Height/ Length :

c) Head circumference :

d) Midarm circumference : Rt Lt

e) chest measurement :

f) Skin fold thickness :

g) Upper segment to lower segment ratio :

h) Arm span :

HEAD TO TOE EXAMINATION:

Head :

Eyes :

Face :

Neck :

Limb

Upper limbs : length Rt Lt

Lower limbs : length Rt Lt

Intercondylar distance&

Inter malleolar distance

Skin :

Odour of the body :

EXAMINATION OF CENTRAL NERVOUS SYSTEM:

HIGHER FUNCTION TEST:

1. Cognitive functions :

a) Orientation :

b) Attention and concentration :

c) Memory :

2. Appearance :

3. Mood :

4. Speech :

5. Handedness :

CRANIAL NERVE EXAMINATIONS:

S. NO.	CRANIAL NERVE	NORMAL		AFFECTED		REMARKS	AFTER TREATMENT RIGHT/ LEFT
		RIGHT	LEFT	RIGHT	LEFT		
1.	Olfactory						
2.	Optic						
3.	Oculomotor						
4.	Trochelar						
5.	Trigeminal Sensory Motor						
6.	Abducent						
7.	Facial Sensory Motor						
8.	vestibulo cochlear						
9.	Glassopharyngel Motor Sensory						
10.	Vagus Sensory Motor						
11.	Spinal accessory						
12.	Hypoglossal						

EXAMINATION MOTOR SYSTEM:

S.NO	MOTOR SYSTEM	NORMAL RIGHT	NORMAL LEFT	AFFECTED RIGHT	AFFECTED LEFT	REMARKS	AFTER TREATMENT RIGHT/LEFT
1.	**Nutrition** Upper limb Lower limb						
2.	**Tone** Upper limb Lower limb						
3.	**Power** **Upper limb** Hand Fore arm Arm Fingers						
	Lower limb Thigh Leg Foot Toe						
4.	**Reflex** Superficial Corneal						
	Conjunctival						
	Abdominal Plantar Cremastic						
	Deep Jaw jerk Biceps Triceps Supinator Knee jerk Ankle jerk						

5.	**Clones** Patellar Ankle						
6.	**Co-ordination** Finger nose Heel knee Finger Finger nose						
7.	**Involuntary movements**						
8.	**Gait**						

SENSORY EXAMINATION:

S.NO	SENSATIONS	NORMAL	AFFECTED	REMARKS	AFTER TREATMENT
1.	**Superficial** Touch Pain Temperature				
2.	**Deep** Position Joint Vibration				
3.	**Cortical** Tactile Localization discrimination Steriognosis				

CEREBELLAR SIGN:

S. NO	SIGN	POSITIVE	NEGATIVE	REMARKS	AFTER TREATMENT
1.	Romberg sign				
2.	Nystagmus				
3.	Unsteadiness				
4.	Intentional tremors				
5.	Pendular jerk				
6.	Slurring of speech				
7.	Ataxia				
8.	Meningeal signs if any				

AUTONOMIC NERVOUS SYSTEM :

Bladder movements :

Bowel movements :

Sweating :

EXAMINATION OF SPINE AND CRANIUM:

Spine :

Cranium :

SIGNS OF MENINGEAL IRRITATION:

EXAMINATION FOR INCREASED ICT:

SOFT NEROLOGICAL SIGNS AND SYMPTOMS:

EXAMINATION OF PERIPHERAL NERVOUS SYSTEM:

CLINICAL ASSESSMENT OF THE LEVEL OF THE LESION:

EXAMINATION OF OTHER SYSTEM:

CVS:

RS:

GIT:

SIDDHA SYSTEM OF EXAMINATION

KUZHANTHAI PARUVANGAL:			**REMARKS**
	N	**A**	
1. Kaapu			
2. Thaal			
3. Sangeerai			
4. Sappani			
5 . Mutham			
6. Vaaranai			
7. Ambuli			
8 .Sitril/ Kazhangu			
9. Siruparai/Ammanai			
10. Sirutheer/Osal			

1. THEGI (TYPE OF BODY CONSTITUION)

1. Vaatha udal
2. Pithaudal
3. Kaba udal
4. Thonthaual

2. NILAM (LAND WHERETHE PATIENT LIVED MOST)

1. Kurinji
2. Mullai
3. Marutham
4. Neithal
5. Paalai

3. KAALAM

1. Kaarkalam
2. Koothirkalam
3. Munpani kalam
4. Pinpani kaalam
5. Illavenirkalam
6. Muthu venil kalam

4. GUNAM

1. sathuvam
2. Thamo gunam
3. Rasogunam

5. PORI/PULANGAL

Sl. no	Pori/pulangal	Right		Left		Right/Left
		Normal	Affected	Normal	Affected	After treatment
1.	Mei/unarvu					
2.	Vaai/suvai					
3.	kan/parvai					
4.	Mooku/natram					
5.	sevi olli					

6. KANMENDHIRIUM

S. no	kanmendhirium	Right		Left		Right/Left After treatment
		Normal	Affected	Normal	Affected	
1.	Kai/dhanam					
2.	Kaal/ghamanam					
3.	Vaai/vaaku					
4.	Eruvai/visarkam					
5.	Karuvai/anantham					

UYIRTHAATHUKKAL:

VAATHAM

S. No	Vaatham	Normal	Affected	Remarks	After treatment
1.	Paranan				
2.	Abananan				
3.	Viyanan				
4.	Uthanan				
5.	Samanan				
6.	Naga				
7.	Koorman				
8.	Kirukaran				
9.	Devathathan				
10.	Dhananjeyan				

PITHAM:

S. no	Pitham	Normal	Affected	Remarks	After treatment
1.	Analagam				
2.	Ranjagam				
3.	Saathagam				
4.	Pirasakam				
5.	Alosagam				

KABAM:

S. no	Kabam	Normal	Affected	Remarks	After treatment
1.	Avalambagam				
2.	Kilethagam				
3.	Pothagam				
4.	Tharpagam				
5.	Santhigam				

8. UDAL THATHUKKAL:

S. No	Udal thathu	Normal	Affected	Remarks	After treatment
1.	Saaram				
2.	Senneer				
3.	Oon				
4.	Kozhuppu				
5.	Enbu				
6.	Moolai				
7.	Sukilam/suronitham				

9. DHASA NADIKAL:

S.No.	Naadi	Normal	Affected	Remarks	After treatment
1.	Edakalai				
2.	Pingalai				
3.	Suzhumunai				
4.	Sikuvai				
5.	Purudan				
6.	Kanthaari				
7.	Atthi				
8.	Alampudai				
9.	Sangeni				
10.	Kugu				

10. ENVAGAI THERVUGAL:

S. no	Envagai thervugal	Remarks	After treatment
1.	Naa Niram Thanmai Suvai		
2.	Niram		
3.	Mozhi Sama oli Uratha oli Thaazhntha oli		
4.	Vizhi Niram Thanmai Paarvai		

5.	Malam Niram Nurai Elagal Eugal		
6.	Moothiram Neerkuri Niram Manam Kalappu Nurai Enjal Murai		
7.	Sparisam		
8.	Naadi		

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRECLINICAL AND CLINICAL EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM VI - DRUG COMPLAINCE

1. S.I. No : **2. OP/IP No:** **3. Name:**

4. Age : **5. Gender:** **6. Date of Enrolment:**

7. Informant: **8 . Reliability:**

Internal Medicine:

Name of the Drug : Chitra Mutti Kudineer Chooranam

Form of the Drug : Kudineer

Administration :Per oral

Dose and Duration : 5- 15ml -45days

No of drug packets given :

No of drug packets returned :

External Medicine:

Name of the method : Baala Vaatham

Administration : Thokkanam

Duration : 45 days

Date: Signature of the principal Investigator

Day	Date	Morning	Evening	Day	Date	Morning	Evening
1.				25			
2.				26.			
3.				27.			
4.				28.			
5.				29.			
6.				30.			
7.				31.			
8.				32.			
9.				33.			
10.				34.			
11.				35.			
12.				36.			
13.				37.			
14.				38.			
15.				39.			
16.				40.			
17.				41.			
18.				42.			
19.				43.			
20.				44.			
21.				45.			
22.							
23.							
24.							

Date & Station:

Signature of the investigator:

Signature of the lecturer: Signature of the HOD

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRE CLINICAL AND CLINICAL ASSESSMENT AND EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM VII - WITHDRAWAL

1. S.I. No :	**2. OP/IP No:**	**3. Name:**
4. Age :	**5. Gender :**	**6. Date of Enrolment:**
7. Informant:	**8 . Reliability:**	

Date of trial commencement	:
Date of withdrawal	:
Reason(s) for withdrawal	:
Long absence at reporting	: Yes/ No
Irregular treatment	: Yes/ No
Shift of locality	: Yes /No
Complication adverse reaction if any	: Yes / No
Exacerbation of symptoms	: Yes /No
Patient not willing to continue	: Yes / No

Date: Signature of principal investigator

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRE CLINICAL AND CLINICAL ASSESSMENT AND EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM VIII -ADVERSE REACTION

1. S.I. No :	**2. OP/IP No:**	**3. Name:**
4. Age :	**5. Gender :**	**6. Date of Enrolment:**
7. Informant:	**8 . Reliability:**	

Name	:
Age	:
Gender	:
OPD/IPD No	:
Registration No	:
Date of trial commencement	:
Date of withdrawal from trial	:
Description of adverse reaction	:

Date: signature of principal investigator

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRE CLINICAL AND CLINICAL ASSESSMENT AND EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM IX - PHARMACOVIGILANCE

1. S.I. No : **2. OP/IP No:** **3. Name:**

4. Age : **5. Gender :** **6. Date of Enrolment:**

7. Informant: **8 . Reliability:**

1. patient/consumer identification (please complete or tick boxes below as appropriate)

NATIONAL PHARMACOVIGILANCE PROGRAMME FOR SIDDHA DRUGS

Reporting Form for Suspected Adverse Reactions to Siddha

Please note: **i.** All consumers/ patients and reporters information will remain confidential.

ii. It is requested to report all suspected reactions to the concerned, even if it does not have complete data, as soon as possible.

Peripheral Centre code: State:

Name	Father name	Patient /Record No.
Ethnicity	Occupation	
Address Village / Town Post / via District / State		Date of Birth/ Age:
		Sex : M/ F Weight : Degam :

1.**Description of the suspected Adverse Reactions (Please complete boxes below)**

Date and time of initial observation		Season:
Description of Reaction		Geographical area:

1. List of all medicines / Formulations including drugs of other system used by the patient during the reporting period:

Medicine	**Daily Dose**	**Route of administration & Vehicle – Adjuvant**	**Date**		**Diagnosis for which medicine taken**
			Starting	**Stopped**	
Siddha					
Any other system of medicines					

1. **Brief details of the Siddha Medicine which seems to be toxic:**

Details	Drug – 1	Drug – 2	Drug – 3
a)Name of the medicine			
b)Manufacturing unit and batch No. And date			
c)Expiry date			
d)Purchased and obtained from			
e) composition of the formulation / part of the drug used			

b) Dietary Restrictions if any

c) Whether the drug is consumed under Institutionally qualified medical supervision or used as self medication.

d) Any other relevant information.

5. **Treatment provided for adverse reations:**

Recovered:	Not Recovered:	Unknown:	Fatal:	If Fatal Date of death:
Severe : Yes/ No.		Reaction abated after drug stopped or dose reduced:		
		Reaction reappeared after re introduction:		
Was the patient admitted to hospital? If yes, give name and address of Hospital				

7. Any laboratory investigations done to evaluate other possibilities? If Yes specifiy:

8. Whether the patient is suffering with any chronic disorders?

Hepatic Renal Cardiac Diabetes Malnutrition

Any other

9. H/O previous allergies / Drug reactions:

10. Other illness (please describe):

This filled – in ADR report may be sent within one month of observation / occurrence of ADR

Who can Report?

= Any Health care professional like Siddha Doctors/ Nurses / siddha pharmacists / Patients etc.

Who to Report?

=All reactions, Drug interactions.

Confidentiality?

= The paient's identity will be held in strict confidence And protected to the fullest extent.

= Submission of report will be taken up for remedial Measures only not for legal claim

Date :

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of HOD

Complication adverse reactions if any : Yes/ No

Exacerbation of symptoms : Yes/ No

Patient not willing to continue :

Date: Signature of the principal investigator

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI- 600 047.

POST GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

PRE CLINICAL AND CLINICAL ASSESSMENT AND EVALUATION OF BAALAVAATHAM (PARESIS) WITH SIDDHA THERAPEUTIC MANAGEMENT IN CHILDREN

FORM X DIETARY ADVICE FORM

1. S.I. No :	**2. OP/IP No:**	**3. Name:**
4. Age :	**5. Gender :**	**6. Date of Enrolment:**
7. Informant:	**8 . Reliability:**	

THINGS TO TAKE

Increased intake of omega 4 fatty acid

Increase intake of vitamins and minerals

Intake of almond milk

A natural food as organic which is easily digestible and absorbed

THINGS TO AVOID

Gluten like wheat be avoid

Casein like dairy products, yoghurts and soy should be avoided

Avoid junk food, pasta pizza burger and artificial food items etc....

Avoid broiler chicken and white sugar

NATIONAL INSTITUTE OF SIDDHA- राष्ट्रीय सिद्ध संसथान
Ministry of AYUSH- आयुष मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार
TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियमचेन्नई -600 047
फ़ोन\Tele : 044-22411611 फैक्स\Fax : 22381314
ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F.No.NIS/6-20/IEC/15-16 Dt: 14.10.2016

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator: Dr. G.Ridhambaradevi – I year, Dept.of Kuzhanthai Maruthuvam	
Protocol Title:- Preclinical and Clinical Evaluation of Baalavatham (Paresis) with Siddha Therapeutic Management in Children.	
Documents filed	1) Protocol, 2) Data Collection forms
Clinical trial Protocol (others – Specify)	**Yes-(M.D-Dissertation)**
Informed consent documents	**Yes**
Any other documents	**-**
Date of IEC approval & its number	**NIS/IEC/2016/11-22/ 14.10.2016**

We approve the trial to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study.

(Dr.V.Subramanian)
Chairman

NATIONAL INSTITUTE OF SIDDHA ★ CHENNAI 600 047

(Prof.Dr.V.Banumathi)
Member Secretary

CERTIFICATE

This is certify that the project title Preclinical and clinical evaluation of "Chitrmutti Kudineer" (internal) and "BaalaVaathaThylam" (external) in the treatment of "BaalaVaatham" (Paresis) **has been approved by the IAEC.** 20 - Rats (10 Male + 10 Female)

Approval NO: NIS/IAEc-IV/06/05012017

V. Banumathi

Prof. Dr. V. Banumathi MD(s) **Prof. Dr. K. Nachimuthu MD(s)**

Chairman/Member Secretary IAEC: **CPCSEA nominee:**

Signature with date 5/1/17

Chairman/Member Secretary of IAEC: **CPCSEA nominee:**

(Kindly make sure that minutes of the meeting duly signed by all the participants are maintained by Office)

Name of the PI: Dr. G. RIDHAMBARA DEVI

Name of the Department & Institute Dept. of Kuzhanthai Maruthuvam
National Institute of Siddha
Chennai - 47.

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

BOTANICAL CERTIFICATE

Certified that the following plant drugs used in the Siddha formulations **"Chitramutti Kudineer"** (Internal) and **"Baalavatha thylam"** (External) taken up for Post Graduation Dissertation studies by **Dr.G.Ridhambaradevi** M.D.(S), II year, Department of Kuzhandhai Maruthuvam, 2017, are identified through Visual inspection, Experience, Education & Training, Organoleptic characters, Morphology and Taxonomical methods as

Zingiber officinale Rosc. (Zingiberaceae), Rhizome.
Alpinia officinarum Hance (Zingiberaceae), Rhizome
Allium sativum Linn. (Liliaceae), Bulb
Pavonia zeylanica Cav. (Malvaceae), Root
Vigna mungo L. (Hepper.) (Fabaceae), Seeds
Areca catechu Linn. (Arecaceae), Nut
Piper betle Linn. (Piperaceae), Leaf
Azadirachta indica A. Juss. (Meliaceae), Seed oil

MEDICINAL BOTANY CHENNAI 600 047 National Institute of Siddha

Certificate No: NISMB3052017

Date: 15-07-17

Authorized Signatory
Dr. D. ARAVIND, M.D.(s),M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai - 600 047, INDIA

Clinical Trial Details (PDF Generation Date :- Sat, 07 Jul 2018 10:23:52 GMT)

CTRI Number	CTRI/2018/04/013296 [Registered on: 16/04/2018] - **Trial Registered Retrospectively**
Last Modified On	13/04/2018
Post Graduate Thesis	Yes
Type of Trial	Interventional
Type of Study	Drug Siddha
Study Design	Randomized, Parallel Group Trial
Public Title of Study	Baalavatham (Paresis)- Siddha Thearapeutic management in Children
Scientific Title of Study	Preclinical and Clinical Assessment and Evaluavtion of Baalavatham (Paresis) with Siddha Thearapeutic management in Children

Secondary IDs if Any

Secondary ID	Identifier
Nil	NIL

Details of Principal Investigator or overall Trial Coordinator (multi-center study)

Details of Principal Investigator	
Name	G Ridhambara devi
Designation	PG scholar
Affiliation	National institute of siddha
Address	Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Kancheepuram TAMIL NADU 600047 India
Phone	7708738987
Fax	
Email	ridhambara15@gmail.com

Details Contact Person (Scientific Query)

Details Contact Person (Scientific Query)	
Name	Dr M Meenakshi sundaram
Designation	Head of the Department
Affiliation	National Institute of siddha
Address	Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Kancheepuram TAMIL NADU 600047 India
Phone	9444214582
Fax	
Email	mmssiddha@rediffmail.com

Details Contact Person (Public Query)

Details Contact Person (Public Query)	
Name	G Ridhambara devi
Designation	PG scholar
Affiliation	National institute of siddha
Address	Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Department of kuzhanthai maruthuvam National institute of siddha Kancheepuram Kancheepuram TAMIL NADU

	600047 India
Phone	7708738987
Fax	
Email	ridhambara15@gmail.com

Source of Monetary or Material Support

Source of Monetary or Material Support
> Ayothidass pandithar hospital National institue of siddha kancheepuram chennai 47

Primary Sponsor

Primary Sponsor Details	
Name	Ayothidoss pandithar hospital
Address	Room no 4 Department of Kuzhanthai Maruthuvam National Institute of siddha kancheepuram
Type of Sponsor	Research institution and hospital

Details of Secondary Sponsor

Name	Address
Ayothidass pandithar hospital	Room no 4 Department of Kuzhanthai Maruthuvam National Institute of siddha kancheepuram

Countries of Recruitment

List of Countries
India

Sites of Study

Name of Principal Investigator	Name of Site	Site Address	Phone/Fax/Email
G Ridhambara devi	National institute of siddha	Room no 4 Department of kuzhanthai maruthuvam National institute of siddha kancheepuram Kancheepuram TAMIL NADU	7708738987 ridhambara15@gmail.com

Details of Ethics Committee

Name of Committee	Approval Status	Date of Approval	Is Independent Ethics Committee?
Institutional ethical committee	Approved	14/10/2016	No

Regulatory Clearance Status from DCGI

Status	Date
Not Applicable	No Date Specified

Health Condition / Problems Studied

Health Type	Condition
Patients	Baalavaatham

Intervention / Comparator Agent

Type	Name	Details
Intervention	CHITRA MUTTI KUDINEER Baala vaatha thylam	Chitra mutti kudineer 5 to 15mltwice a day with palm jaggery for 45days Baalavaatha thylam external
Comparator Agent	not applicable	not applicable

Inclusion Criteria

Inclusion Criteria	
Age From	2.00 Year(s)
Age To	12.00 Year(s)
Gender	Both
Details	Mono di tetra quadri paresis weakness of one or more limb loss of power and tone in muscles of the affected limb difficulty inability in using the affected limb against gravity and resistance

	difficulty in using the upper limb

Exclusion Criteria

Exclusion Criteria	
Details	epilepsy severe aggressiveness with ADHD autism cerebral palsy congenital heart disease any other serious illness

Method of Generating Random Sequence	Not Applicable
Method of Concealment	Not Applicable
Blinding/Masking	Not Applicable

Primary Outcome

Outcome	Timepoints
to reduce the muscle spastisity	to reduce the muscle spasticity

Secondary Outcome

Outcome	Timepoints
spasticity assessment Range of motion assesment with goniometery	to reduce the muscle spasticity

Target Sample Size	**Total Sample Size=**30 **Sample Size from India=**30
Phase of Trial	Phase 4
Date of First Enrollment (India)	18/08/2017
Date of First Enrollment (Global)	No Date Specified
Estimated Duration of Trial	**Years=**1 **Months=**6 **Days=**28
Recruitment Status of Trial (Global)	Not Applicable
Recruitment Status of Trial (India)	Open to Recruitment
Publication Details	not yet
Brief Summary	It is a single non randamized open and label trial to determine the therapeutic management of baalavaatham in children with inclusion criteria of age between 2 to 12 both sex Mono or di or tetra or quadri paresis weakness of one or more limb, loss of power and tone in muscle of the affected limb, difficulty or inability in using the affected limb against gravity and resistant, difficulty in using the affected limb, this is treated with internal medicine chitra mutti kudineer at a dose of 5 to 15ml twice a day with palm jaggery for 45 days and external theraphy thokkanam with the medicated oil baala vaatha thylam during the study period all the study related data will be recorded and documented in a seperate trial master file for each patient during the trial period if any adverse effect will be noticed and referred to pharmacovigilance department and further management will also be given in NIS opd and ipd the entire trial will moniter by the research monitoring committee of NIS during this trial all the safty and efficacy parameters will be recorded in the CRF after the completion of trial all the study related data will be analysed statistically the outcome of trial will be published in indian journal of medical research

The Tamil Nadu Dr.M.G.R.Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

This Certificate is awarded to Dr/Mr/Mrs..... RIDHAMBARA DEVI. G .....

For participating as ~~Resource Person~~ / Delegate in the Twenty First Workshop on

"RESEARCH METHODOLOGY & BIOSTATISTICS"

*For **AYUSH Post Graduates & Researchers***

Organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University From 25th to 29th April 2016.

Dr.N.KABILAN, MD(S),
PROF & HEAD
DEPT.OF SIDDHA

Prof.**Dr.P.ARUMUGAM,** M.D.,
REGISTRAR i/c

Prof. **Dr.S.GEETHALAKSHMI,** M.D., Ph.D.,
VICE CHANCELLOR

NATIONAL INSTITUTE OF SIDDHA

(An Autonomous body under Ministry of AYUSH, Govt. of India)
Tambaram Sanatorium, Chennai- 600 047

Workshop on

"BASIC RESEARCH TECHNIQUES AND PRACTICES INVOLVED IN LABORATORY ANIMAL CARE"

06 -10 February 2017

CERTIFICATE

This is to certify that Dr.....G. Ridhambaradevi..... has participated as Delegate/~~Resource~~ Person in the workshop on "Basic Research Techniques and Practices involved in Laboratory Animal Care" held on 06-10 February, 2017 at National Institute of Siddha, Chennai-47, Tamilnadu.

Dr. V. Suba
Organizing Secretary

Dr. P. Muthusamy
Veterinary Consultant

Prof. Dr. V. Banumathi
Director / Chairperson

இரசாயனங்களைத் தவிர்ப்போம்!

வருங்கால சந்ததிகளை காப்போம்!!

AYUSH Doctor's Association
KRISHNAGIRI

'SIDDHAM'

CME PROGRAM

This Certificate is awarded to Dr. G. RIDHAMBARA DEVI. B.S.M.S., M.D[S],

for his / her participate in **"SIDDHAM" CME PROGRAM,** *on 27th March - 2016*

at I.M.A. Hall, Krishnagiri.

Organising Secratary
Dr. VS. Hariharan, BSMS.,
Krishnagiri AYUSH Doctor's Association

President
Dr. K.S.Mohamed Nizamudeen, BUMS.,
Krishnagiri AYUSH Doctor's Association

21st INCOFYRA

International Conference on Frontiers in Yoga Research and Its Applications

Theme

Integrating Best of East with Best of West in Medical Practice

Jan 3-7, 2016 | Prashanti Kutiram, Bengaluru - 560 105

Certificate

This is to Certify that

Mr/ Mrs/ Ms Dr. G. RIDHAMBARADEVI.

has participated as Delegate ✓ / Organizer / Volunteer

in the Main Conference

Dr H R Nagendra
President

Dr Sudheer Deshpande
Organising Secretary

Organised by:
VYASA, Bengaluru

Technical Support by:
S-VYASA Yoga University, Bengaluru

AKNOWLEDGEMENT

1.INTRODUCTION

2.AIM & OBJECTIVES

3.REVIEW OF LITERATURE

A. SIDDHA ASPECTS

B. THOKKANAM

C. MODERN ASPECT

D. D.DRUG REVIEW

4. METERIALS &METHODS

OBSERVATIONS & RESULTS

DISCUSSION

SUMMARY

CONCLUSION

ANNEXURE